TELEVISION BOOSTER STATIONS

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH CONGRESS

SECOND SESSION

ON

S. 1886

AN ACT TO AMEND THE COMMUNICATIONS ACT OF 1934 WITH RESPECT TO CERTAIN REBROADCASTING ACTIVITIES

JUNE 6 AND 7, 1960

Printed for the use of the Committee on Interstate and Foreign Commerce

UNITED STATES
GOVERNMENT PRINTING OFFICE
87235 WASHINGTON : 1960

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

OREN HARRIS, Arkansas, *Chairman*

JOHN BELL WILLIAMS, Mississippi
PETER F. MACK, JR., Illinois
KENNETH A. ROBERTS, Alabama
MORGAN M. MOULDER, Missouri
HARLEY O. STAGGERS, West Virginia
WALTER ROGERS, Texas
SAMUEL N. FRIEDEL, Maryland
JOHN J. FLYNT, JR., Georgia
TORBERT H. MACDONALD, Massachusetts
GEORGE M. RHODES, Pennsylvania
JOHN JARMAN, Oklahoma
LEO W. O'BRIEN, New York
JOHN E. MOSS, California
JOHN D. DINGELL, Michigan
JOE M. KILGORE, Texas
PAUL G. ROGERS, Florida
ROBERT W. HEMPHILL, South Carolina
DAN ROSTENKOWSKI, Illinois
LAWRENCE BROCK, Nebraska
JAMES C. HEALEY, New York

JOHN B. BENNETT, Michigan
WILLIAM L. SPRINGER, Illinois
PAUL F. SCHENCK, Ohio
STEVEN B. DEROUNIAN, New York
J. ARTHUR YOUNGER, California
WILLIAM H. AVERY, Kansas
HAROLD R. COLLIER, Illinois
MILTON W. GLENN, New Jersey
SAMUEL L. DEVINE, Ohio
ANCHER NELSEN, Minnesota
HASTINGS KEITH, Massachusetts
WILLARD S. CURTIN, Pennsylvania

W. E. WILLIAMSON, *Clerk*
KENNETH J. PAINTER, *Assistant Clerk*

Professional Staff

ANDREW STEVENSON
KURT BORCHARDT
SAM G. SPAL
MARTIN W. CUNNINGHAM

SUBCOMMITTEE ON COMMUNICATIONS AND POWER

OREN HARRIS, Arkansas, *Chairman*

WALTER ROGERS, Texas
JOHN J. FLYNT, JR., Georgia
JOHN E. MOSS, California
DAN ROSTENKOWSKI, Illinois

JOHN B. BENNETT, Michigan
J. ARTHUR YOUNGER, California
WILLIAM H. AVERY, Kansas

DEPOSITED BY THE
UNITED STATES OF AMERICA

CONTENTS

	Page
Text of S. 1886	2
Report of—	
Air Force Department	3
Bureau of the Budget	3
Commerce Department	4
Federal Aviation Agency	4
Federal Communications Commission	2
Statement of—	
Alger, James P., county attorney of Carbon County, Utah	89
Allen, Edward W., Jr., Chief Engineer, Federal Communications Commission	21
Allott, Hon. Gordon, a U.S. Senator from the State of Colorado	15
Anderson, Hon. LeRoy, a Representative in Congress from the State of Montana	12
Aspinall, Hon. Wayne N., a Representative in Congress from the State of Colorado	18
Beamer, James, secretary, Tri-State TV Repeater Association	72
Bretey, Jack, vice president, Wyoming TV Repeaters Association	99
Carroll, Hon. John A., a U.S. Senator from the State of Colorado	13
Craven, T. A. M., Commissioner, Federal Communications Commission	21
Cross, John S., Commissioner, Federal Communications Commission	21
Dixon, Hon. Henry Aldous, a Representative in Congress from the State of Utah	7
Ewing, Eugene M., president, Wyoming TV Repeaters Association	96
FitzGerald, John L., General Counsel, Federal Communications Commission	21
Ford, Hon. Frederick W., Chairman, Federal Communications Commission	21
Harward, Kendrick, president, Utah TV Repeater Association	86
Horan, Hon. Walt, a Representative in Congress from the State of Washington	11
Howell, Rex G., president, KREX–AM–FM–TV, KGLN, KREY–TV, Grand Junction and Montrose, Colo	104
Johnson, Hon Byron L., a Representative in Congress from the State of Colorado	137
King, Hon. David S., a Representative in Congress from the State of Utah	139
Lee, Robert E., Commissioner, Federal Communications Commission	21
McGee, Hon. Gale, a U.S. Senator from the State of Wyoming	63
McGinley, Hon. Donald F., a Representative in Congress from the State of Nebraska	70
Moss, Hon. Frank E., a U.S. Senator from the State of Utah	19
Nash, Ray E., county attorney of Uintah County, Utah	92
Pfost, Hon. Gracie, a Representative in Congress from the State of Idaho	10
Shapp, Milton J., president, Jerrold Electronics Corp	141
Spencer, Warner, representing Idaho TV Repeater Association	140
Thomason, Harris M., Washington State TV Reflector Association	125
Thomson, Hon. Keith, a Representative in Congress from the State of Wyoming	5
Udall, Hon. Stewart L., a Representative in Congress from the State of Arizona	17
Wasilewski, Vincent T., director of Government affairs, National Association of Broadcasters	69

Additional information submitted for the record by— Page
Armstrong, M. D., mayor, town of Pateros, Wash., letter from 127
Brender, Robert T., mayor, city of Leavenworth, Wash., letter from 128
Church, Hon. Frank, letter from 134
East Wenatchee (Wash.) District Chamber of Commerce, letter from Robert N. Farquhar, president 126
Entiat Valley (Wash.) Chamber of Commerce, letter from William E. McDonald, president 129
Farmer, Lloyd, mayor, town of Mansfield, Wash., letter from 127
Federal Communications Commission:
Notice of further proposed rulemaking, docket No. 12116 53
Report and order, docket No. 11331 41
TV boosters authorized for UHF stations, public notice B–89172, May 25, 1960 40
Hatch, George C., statement of 134
Hoglund, Charles L., letter from 129
Lowry, A. L., mayor, town of Brewster, Wash., letter from 127
National Community Television Association, Inc., letter from A. J. Malin, president 151
People's TV Association, Inc., letter from M. D. Lannigan, president 128
Utah TV Repeater Association, counties in which television repeaters are used, map 87
Wenatchee (Wash.) Chamber of Commerce, letter from Glenn A. Woods, executive director 126

TELEVISION BOOSTER STATIONS

MONDAY, JUNE 6, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS AND POWER OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to call, at 10 a.m., in room 1334, New House Office Building, Hon. Oren Harris, chairman, presiding.

The CHAIRMAN. The subcommittee will come to order.

This morning the Subcommittee on Communications and Power is meeting to hold hearings on a bill, S. 1886, which has already passed the Senate and which is of great interest to viewers of television programs, particularly those located in the western portion of the country.

I have known of the importance and the urgency of this legislation for some time. In the early part of this year a great many people came to see me about it, particularly our friends from the westerly section of the country, advising me that a program was being worked out and the bill was being considered in the other body. I agreed to postpone action on the legislation, giving an opportunity to try to work out something which would be satisfactory to the greatest number interested in the problem. Furthermore, I promised those who were interested that we would hold hearings on this legislation and make every effort to get the problem finally resolved.

The purpose of the bill is to amend two sections of the Communications Act of 1934. The first is section 318 of the act, which provides that the actual operation of all transmitting apparatus of any radio station for which a station license is required by the Communications Act shall be carried on only by a person holding an operator's license, and no person shall operate any such apparatus of such station except under and in accordance with an operator's license issued to him by the Commission.

Section 1 of S. 1886 would authorize the Federal Communications Commission to waive this statutory requirement if the public interest, convenience, and necessity warrants such waiver in the case of booster stations and in the case of other transmitting equipment used in rebroadcasting the signals of television broadcast stations.

The bill would further amend section 319 of the act to give the Federal Communications Commission discretion, if it finds that the public interest, convenience and necessity would be served thereby, to waive the requirement of a construction permit for a booster station or any other station which is engaged solely in rebroadcasting television signals if such booster or such station was constructed on or before the enactment of the bill.

Very likely the testimony of the Members of Congress interested in the problem and of the Federal Communications Commission will relate in detail the background and need for this legislation.

Therefore, without any further comment from me, before we hear from our first witness this morning I would like to include in the record a copy of the reports of the several agencies—the report of the Federal Communications Commission, which is favorable; of the Bureau of the Budget, which makes no objection; of the Department of the Air Force, which makes no objection; of the Federal Aviation Agency, which is favorable; and of the Department of Commerce, which makes no objections. These reports will be included in the record at this point.

(S. 1886 and the departmental reports follow:)

[S. 1886, 86th Cong., 1st sess.]

AN ACT To amend the Communications Act of 1934 with respect to certain rebroadcasting activities

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 318 of the Communications Act of 1934 (47 U.S.C. 318) is amended by striking out "(3) stations engaged in broadcasting, and" and insert in lieu thereof the following: "(3) stations engaged in broadcasting (other than those engaged solely in the function of rebroadcasting the signals of television broadcast stations), and".

SEC. 2. Section 319(d) of the Communications Act of 1934 (47 U.S.C. 319(d)) is amended by inserting after the period at the end thereof the following: "If the Commission finds that the public interest, convenience, and necessity would be served thereby, it may waive the requirement of a permit for construction of a station that is engaged solely in rebroadcasting television signals if such station was constructed on or before the date of enactment of this Act."

Passed the Senate September 9 (legislative day, September 5), 1959.

Attest:

FELTON M. JOHNSTON, *Secretary.*

FEDERAL COMMUNICATIONS COMMISSION,
Washington, D.C., October 28, 1959.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR CHAIRMAN HARRIS: This is in response to your request of September 17, 1959, for Commission comment on S. 1886 which was passed by the Senate on September 9, 1959.

This bill is a limited version of H.R. 6471 which you introduced and of H.R. 6921 introduced by Mr. Dixon. Both of these bills reflect legislative recommendations made by the Federal Communications Commission on April 8, 1959. The Commission recommended and these two bills proposed, in part, amendment of section 318 of the Communications Act so as to permit the Commission to waive or modify the otherwise mandatory requirement that the actual operation of all transmitting apparatus in a radio broadcasting station be carried on only by a person holding an operator's license issued to him by the Commission. The provisions of S. 1886, however, relax the requirement for operators only for stations engaged solely in the function of rebroadcasting the signals of television broadcast stations.

As you are aware, the Commission's recommendations regarding amendment of section 318 have grown out of our consideration of the possibility of licensing a substantial number of television repeater stations or boosters. The considerations which favor authorization of these types of stations also suggest the desirability of exempting them from the statutory operator requirements generally applicable to all broadcasting stations. The bill, S. 1886, accomplishes this by specifically removing the requirement for the rebroadcast type of station only. In the Senate Interstate and Foreign Commerce Committee reports concerning S. 1886 it is pointed out that the FCC's original request urged broad discretion which would have permitted the Commission to waive the operator requirements for regular broadcast stations as well as for boosters. but goes on to state that the committee "feels this request was too broad and that the hearing record would not support such a proposal." It is further stated that the committee therefore limited the discretion being granted to the Commission by the bill therein reported

to those operations engaged solely in the functions of rebroadcasting signals of television broadcasting stations.

We do not intend to suggest that S. 1886 would not solve the problem which is the immediate purpose of amending section 318 and, of course, favor the amendment on that basis. We do suggest, however, that the provision of section 318 requiring operators at all broadcast stations is out of keeping with the general tenor of the act in which the Commission has wide discretion regarding purely technical operating requirements. We believe this discretion and the attendant flexibility highly desirable if not absolutely necessary because of ever changing technical considerations and advances. As we have previously stated, we believe unattended operation of other broadcast stations technically feasible but are not now contemplating the immediate or even the eventual removal from Commission rules of the requirements for operators at all broadcasting stations. Rather, we are suggesting removal of the statutory requirement in this regard as a desirable modernization of this section of the act apart from the immediate purpose of permitting unattended operation of television boosters.

Section 2 of S. 1886 would amend section 319 of the Communications Act so as to permit the Commission to waive the requirement for a construction permit for stations engaged solely in rebroadcasting. In the Commission's suggestion regarding amendment of 319 the waiver could be given only for the television boosters constructed prior to January 1, 1959. The bill S. 1886 would permit the waiver for any such station constructed prior to the effective date of the amendment. The Commission has no objections to the change in date and endorses the amendment of 319 contemplated by S. 1886.

By direction of the Commission:

JOHN C. DOERFER, *Chairman.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., February 24, 1960.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

MY DEAR MR. CHAIRMAN: This is in reply to your letter of September 17, 1959, requesting the views of the Bureau of the Budget on Senate bill 1886, to amend the Communications Act of 1934 with respect to certain rebroadcasting activities.

The proposed legislation would permit the Federal Communications Commission, in cases involving stations engaged solely in rebroadcasting television signals of other stations, to waive the requirements that (1) transmitting equipment be operated by persons licensed by the Commission and (2) permits for station construction be obtained from the Commission by stations constructed on or prior to the date of the bill's enactment. Since the Commission cannot legally license stations which either were constructed without a Federal Communications Commission permit or are operated without a licensed operator, the bill would permit (but would not require) the Commission to authorize television "booster" stations.

This office would have no objection to the enactment of this measure.

Sincerely yours,

PHILLIP S. HUGHES,
Assistant Director for Legislative Reference.

DEPARTMENT OF THE AIR FORCE,
Washington, March 11, 1960.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. CHAIRMAN: Reference is made to your request for the comments of the Department of Defense on S. 1886, 86th Congress, an act to amend the Communications Act of 1934 with respect to certain rebroadcasting activities. The Secretary of Defense has delegated to this Department the responsibility for expressing the views of the Department of Defense on this legislative proposal.

The purpose of S. 1886 is to facilitate the construction and operation of stations engaged solely in rebroadcasting signals of broadcasting stations. This purpose is identical to that of H.R. 6471 and H.R. 6921 which were reported on by our

letter of June 29, 1959, to your committee. S. 1886 would accomplish its purpose in two ways:

(1) by authorizing the Federal Communications Commission to waive or modify the present requirement of the law that a station "engaged in broadcasting" shall be operated by a person holding an operator's license; and

(2) by authorizing the Federal Communications Commission to waive, in certain additional cases, the requirement that a station engaged in rebroadcasting signals of broadcasting stations obtain a construction permit.

The Department of the Air Force, on behalf of the Department of Defense, interposes no objection to the enactment of this bill, since it has been advised by the Federal Communications Commission that no station involved would broadcast on frequencies below 54,000 kilocycles. It is pointed out that uncoordinated MF and HF broadcasting on frequencies below 30,000 kilocycles would adversely affect naval communications. The Federal Communications Commission has assured that the Department of Defense would be advised of and given an opportunity to be heard on any changes to the procedures as stated above.

This legislation would have no effect on Department of Defense appropriations.

This report has been coordinated within the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

The Bureau of the Budget advises that there is no objection to the submission of this report.

Sincerely yours,

LYLE S. GARLOCK,
Assistant Secretary of the Air Force.

FEDERAL AVIATION AGENCY,
Washington, D.C., March 25, 1960.

Hon. OREN HARRIS,
Chairman, Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN. This is in reply to your letter of September 17, 1959, requesting a report with respect to S. 1886, an act to amend the Communications Act of 1934 with respect to certain rebroadcasting activities.

The purpose of this act is to amend section 318 of the Communications Act of 1934 so as to grant the Federal Communications Commission discretion to waive the statutory requirements concerning the operation of transmitting equipment used in booster or rebroadcasting stations if the public interest, convenience, and necessity warrants such action. It would also amend section 319 of that act granting the Federal Communications Commission similar discretion, if the public interest requires, with respect to waiving the requirement of a construction permit for a booster that is engaged solely in rebraodcasting TV signals, if such a booster was constructed on or before the enactment of this act.

The Federal Aviation Agency has reviewed the provisions of S. 1886 and recommends that it be given favorable consideration. We feel that enactment of this legislation would be in the public interest. It is assumed that the Federal Communications Commission will issue necessary rules and regulations preventing interference to other communication services, such as those required in controlling air traffic.

We have been advised by the Bureau of the Budget that there would be no objection to the submission of this report to your committee.

Sincerely,

E. R. QUESADA, *Administrator.*

THE SECRETARY OF COMMERCE,
Washington, D.C., March 4, 1960.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request of September 17, 1959, for the views of this Department with respect to S. 1886, an act to amend the Communications Act of 1934 with respect to certain rebroadcasting activities.

The bill would amend the Communications Act of 1934 so as to grant the Federal Communications Commission discretion to waive, under certain conditions, certain requirements relating to booster or rebroadcasting operations. Such

operations are used as a means of extending television service to small communities remote from metropolitan centers.

The Department believes that the bill is in the public interest and we would interpose no objection to enactment thereof.

The Bureau of the Budget has advised that it would interpose no objection to the submission of this report to your committee.

Sincerely yours,

PHILIP A. RAY,
Under Secretary of Commerce.

The CHAIRMAN. We are glad to recognize several of our colleagues here this morning who have expressed an interest in this problem. Our first witness is Mr. Keith Thomson, of Wyoming.

Mr. Thomson, we shall be glad to hear from you at this time.

STATEMENT OF HON. KEITH THOMSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WYOMING

Mr. THOMSON. Mr. Chairman and members of the committee, I thank the committee for taking up S. 1886 pertaining to the operation of certain television rebroadcasting activities commonly referred to as boosters.

This legislation is similar to H.R. 7667 which I introduced on June 10, 1959. Since that time I have been in frequent contact with the chairman and members of the committee regarding hearings and action on this legislation.

The CHAIRMAN. To that fact I can testify.

Mr. THOMSON. Yes.

I understand the reasons for the delay, but now that those reasons have been removed, I sincerely hope prompt action will be taken following these hearings so this legislation may become law at this session of Congress. Unless this is done, a large number of boosters which provide a substantial portion of our population their only television reception, will face the continuing threat of being forced to discontinue operations.

With respect to this, I would also like to express my appreciation to the committee, and particularly to the chairman and the ranking member, for the assistance they have given to us in having the grace period extended with reference to these boosters.

Television is still in its infancy. As would be expected, there are many problems which confront us and which may require future legislative attention. It is necessary that we establish certain principles to guide us.

In the area of distribution, it seems to me that the primary objective in the public interest is to make available to the maximum number of our citizens the benefits of television. The public interest further requires providing a maximum selection of programs, the best quality of reception, and preserving the public benefits of local station operations.

I might comment that if we do not have a signal to boost, then the booster is of no value.

To accomplish these objectives may require legislation which goes far beyond the scope of the bill now under consideration. I appreciate, though, that it is not possible to consider such legislation at this time and at this session of Congress, particularly in view of the recent action of the Senate. I am confident, though, that the committee recognizes

the importance of this and will give attention to it in the next session of Congress.

Almost every State has a number of small communities and rural areas which may expect to receive television signals only through booster operations. In some sections of the country, though, and particularly in the West, this is more predominant, and that explains my appearing before you as the Representative in Congress of the State of Wyoming. In Wyoming and other States of this area, a large portion of our population is rural or in small communities. Because of this, coupled with the character of our terrain, being mountainous in nature, this major portion of our population can now and in the reasonable future expect to receive television only through booster operations.

It has been reliably estimated that about 60 percent of the people of Wyoming see television over booster stations, and that 25 percent of our population cannot expect to receive a suitable television signal by any other means. The permitting of booster operations on a reasonable basis is the only way we can satisfy this first and primary principle which I mentioned, of extending the benefits of television to the maximum number of our citizens.

There is no doubt now that the Federal Communications Commission does have the authority to license and to regulate booster operations. For a time, though, it was not generally known or accepted that the installation of a booster operation did require a license. As a result, a large number of these installations were made without this authority. Now these stations are confronted with the proposition that they cannot qualify because they did not obtain a permit for construction prior to making the installation. Section 2 of the bill merely permits a waiver of this requirement by the Commission if the Commission finds that the public interest, convenience, and necessity would be served thereby.

The first section of the bill grants to the Commission the discretion of waiving the requirement that a licensed operator be in personal attendance at a booster installation. It has been well established that such a requirement is not necessary, and unless it is removed, the continued operation of the boosters will be made economically impossible.

These proposed actions are fair, reasonable and necessary and, as far as I know, not controversial.

As I previously mentioned, the Federal Communications Commission is now proceeding to formulate regulations for the licensing of new, very high frequency booster stations and for the operation of booster stations, in their docket No. 12116. There is no doubt about their authority to license and operate, but I would point out to the committee that this regulation must be reasonable.

The Wyoming TV Repeater Association has submitted several recommendations for amendments to the regulations originally proposed. I have joined in urging their favorable consideration. Unless action is taken to reasonably provide for the needs of the booster operations, it may very well be that additional legislation will be required.

In the meantime, however, this legislation, which would only remove the obstacle to continued operation of booster stations already constructed if they meet the requirements of the Commission, and would

remove the unnecessary requirement of the law that a licensed operator be in personal attendance, should be enacted.

The CHAIRMAN. Does that conclude your statement, Mr. Thomson?

Mr. THOMSON. It does, Mr. Chairman.

The CHAIRMAN. Mr. Younger, any questions?

Mr. YOUNGER. How are these booster stations financed?

Mr. THOMSON. They are financed by local community effort, by donations. In no case that I know of is anyone forced into it. It is purely a voluntary operation or voluntary association to bring the benefits of television to the communities or to a group of ranches. It relies upon the contributions for its support.

Mr. YOUNGER. They make no attempt to charge the receiver?

Mr. THOMSON. No. There is no charge. It is free television. There would be no way to control any charge if they were so disposed. They set up an installation at a cost of from $2,000 to $4,000, depending upon its complexity. That picks up the signal usually on top of a mountain, and rebroadcasts it out on a very low power output to the people in that area, so anyone can pick it up.

Mr. YOUNGER. They do no advertising of their own?

Mr. THOMSON. They do no advertising of their own whatsoever.

Mr. YOUNGER. That is all, Mr. Chairman.

The CHAIRMAN. To whom do these booster stations belong—to the broadcasting station or to the organization of receivers?

Mr. THOMSON. They belong to the organization of receivers, Mr. Chairman, who have gotten together on this donation basis, which varies, depending upon the number of people who are in a given area, to buy the equipment, to cause it to be installed, and to provide for its operation and maintenance.

The CHAIRMAN. There is no licensed operator at all, or is that required?

Mr. THOMSON. No, Mr. Chairman. The regulations which have been proposed would require remote control devices so they can turn it on and off as might be necessary. As far as the operation itself is concerned, it does not require an operator at present.

The CHAIRMAN. Thank you very much for your testimony and your expression of interest in this problem. I have some more questions, but I think I will wait until the members of the Commission appear, since my questions are of a technical nature. Thank you very much.

Mr. THOMSON. Thank you.

The CHAIRMAN. I observe we have our colleague, Dr. Dixon, from Utah, with us. Doctor, I believe you have a bill on this problem, too. We are glad to have you before us.

STATEMENT OF HON. HENRY ALDOUS DIXON, REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. DIXON. Mr Chairman and committee members, thank you for the opportunity to appear this morning in behalf of S. 1886, with which my own bill, H.R. 11333, is identical. It is a followup of House Concurrent Resolution 94 and H.R. 6921 introduced May 6, 1959.

This legislation is minimal. It would not require the FCC to do anything they found difficult or against the public interest, but it

would grant the FCC discretion to waive the statutory requirement concerning the use of booster rebroadcasting operations, and it would waive the requirement that an advance construction permit be obtained for boosters constructed before enactment of this bill. The FCC could, of course, only take these actions where the public interest warrants.

Let me say that I represent 25 of the 29 counties in Utah which includes most of the rural area of the State. These rural constituents of mine are as keenly interested in this bill that you are considering today as anything else I can think of, including farm legislation which would directly affect their operations. Failure to enact this legislation would terminate TV in 19 rural counties.

A major purpose of the Federal Communications Act has been to provide free radio and television to the citizens of the United States. However, failure to enact this law could terminate that desirable objective for many of the rural people of the West.

For example, in Utah 80 percent of the area of the State is or could be served by boosters. The State of Utah has enacted a law permitting local governments to erect these booster stations in areas where television signals do not reach. These boosters are already in use in 19 of the 29 counties.

Let me give you some examples of just what these booster stations mean to my rural constituents.

(1) San Juan County: San Juan County is the extreme southeastern county of Utah. It is distant from most of the entertainment and educational centers of the State. The following paragraph comes from a letter from G. K. Coates, chairman, San Juan County Recreation Board:

> The current installation in San Juan County, Utah, which is operated under the auspices of the San Juan County Recreation Board and financed by direct tax assessment, is serving an audience of 10,000 to 12,000 people at a cost of approximately $10,000. To convert to a UHF installation would limit the coverage to probably half of the residents of the county at a cost of $40,000 or $50,000. The quality of TV picture from UHF installations is much inferior to that produced by the VHF booster installations.

(2) Bear Lake Valley: Another illustration of how these boosters are used to provide television for our rural areas is the Bear Lake Valley TV Association covering northern Rich County in northeastern Utah and Bear Lake County in southern Idaho. On a cooperative basis these people have been able to set up booster stations on high mountains from 7,500 to 8,500 feet. They have constructed powerlines and roads to these sites almost entirely by donated labor of community residents so that the systems only cost from $4,000 to $7,000. The system covers 13 communities with a population of 6,500 people, but the costs of changing from VHF to UHF would be prohibitive. It would mean the end of television reception through the booster which would in effect mean the end of television for 75 percent of the people who live in the valley. The other 25 percent are able to pick up signals direct, though not very good ones.

(3) Sevier County: In Sevier County a cable system supplied television to 602 people in the Richfield area in central Utah. The hookup costs were $150 to $200 and the maintenance charge was $3.85 a month. This cable system only brought in two stations and it was universally agreed that the image was very poor. Consequently, the county took advantage of the State law, raised the recreation

assessment slightly, and set up a booster system to serve the whole county. Instead of serving only 602 people, the booster system provides television for almost all of the 12,072 people living in the county. There are more than 3,000 television sets now in operation. The booster brings in three channels instead of two, and the image is very much clearer. The cost of installation was only $8 compared with $150 on the cable system, and the maintenance cost is only 11½ cents per set per month as against $3.85 per set per month. This information is typical of letters and testimony which I have received from most of the counties of my congressional district as well as a resolution of the State legislature.

In conclusion, let me state that where there is a system which provides people free television at very little cost to the community and where this system has not yet been shown to interfere in any way with other signals in many of the sparsely populated areas of the country, and where the people served are farmers who have been economically hard hit and therefore can least afford to pay for expensive television systems and who, because of their remote locations, most need and appreciate the educational and entertainment values of education, then it is clearly the responsibility of this legislative body to permit the Federal Communications Commission to legalize this system.

The CHAIRMAN. Thank you very much, Doctor.

Mr. Younger, any questions?

Mr. YOUNGER. Mr. Dixon, have you any educational TV stations in Utah?

Mr. DIXON. We have one in Salt Lake City. The institutions of higher learning have gone together and created one, but it could not get out to 19 counties without these facilities, these very high frequency booster stations.

Mr. YOUNGER. I was wondering whether they also were interested in the continuance and enlargement of the booster stations.

Mr. DIXON. There is no question about it. I have no definite evidence, but reason tells me this is mandatory for them to get out with their educational facilities.

Mr. YOUNGER. Do you know of any other State which has authorized the counties to install booster stations and levy a tax for their construction and support?

Mr. DIXON. I have no such information, but I do know that is the case in Utah. The last legislature passed such an act.

Mr. YOUNGER. That is all, Mr. Chairman.

The CHAIRMAN. Do you know to what extent those counties have used the authority granted by the State of Utah?

Mr. DIXON. In my testimony I have a number of instances. They are complying generally with it. It is so popular it is sweeping the State. Some of them have even issued bonds to do it with, and the bonds have been voted 10 to 1.

The CHAIRMAN. How many counties have issued such a levy or tax?

Mr. DIXON. I am not certain. Of the 24 counties in my district, 19 have these booster stations. Many of them were constructed before the law was passed. Quite a number yet need them. We have here representatives from our State who I believe can answer that.

The CHAIRMAN. Thank you very much, Doctor. We appreciate your interest in the problem. The next witness is our colleague from Idaho, the Honorable Gracie Pfost. Mrs. Pfost, we will be glad to hear you at this time.

STATEMENT OF HON. GRACIE PFOST, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

Mrs. PFOST. Mr. Chairman and members of the committee, I appreciate very much the opportunity to present my views on the bills under consideration by this committee. You will note my bill, H.R. 3743 is entitled the "Community Television Act of 1959" and was introduced in January of 1959. It is similar to S. 1886 and H.R. 11040 which would grant the Federal Communications Commission the authority to regulate and license VHF television booster stations. Passage of these measures is very important to residents of the First Congressional District which I have the privilege to represent and I hope the committee will act favorably on the legislation.

Television is now a permanent and important part of the American scene. More than 50 million sets are in operation throughout the United States, and a goodly number of these are located in homes in the rural and mountainous regions of the Northwest.

In my own State of Idaho, there are thousands of families living in small communities and on small farm and ranches who depend on TV booster stations to bring TV signals into their homes. I know from personal visits with hundreds of these families what television means to them.

For the farmer who has spent the day in the fields or in the marketplace, for the rancher or dairyman who has spent long hours at his chores, there is nothing to compare with live newscasts or an hour or two of entertainment in the evening in front of the TV set before retiring. Television thus serves to open a larger more educational and more interesting world to them—just as years ago the REA brought light and power to rural America.

Idaho, as the committee knows, is part of a six-State Northwest area which, because of the rugged terrain, has the heaviest concentration of VHF boosters in the Nation. The TV broadcasting stations which operate in the large cities depend on these VHF boosters to carry their signals hundreds of miles beyond their normal range.

These VHF boosters are without doubt the most popular TV repeater system in use today. They are recognized as such by communications engineers. The boosters do the job where other systems—antenna cable and UHF repeaters, could not as a practical matter be used. UHF repeaters, for example, are less efficient because they send their signals only in a straight line, and high hills and trees tend to disrupt the signals. And, in the case of antenna cables, the cost of extending them into rural areas is prohibitive.

With so many thousands of rural families, both in Idaho and other States, dependent upon VHF booster stations for TV reception, and with so many hundreds of these VHF repeater stations in operation today, it is only commonsense that the FCC be permitted to license and regulate the stations. This would bring the national know-how of this important agency into play in establishing a definite pattern and set of standards to VHF booster operations.

If, for example, the booster signals were causing interference with other communications as has happened in certain isolated cases, then the FCC could be counted on to resolve the problem. Certain rural

areas, moreover, such as Lemhi and Custer Counties and portions of Idaho, Lewis and Clearwater Counties in Idaho, are situated in a valley with mountains on both sides, and they require special consideration when it comes to placing and planning booster stations. Such areas should not be limited to faulty reception of just one channel, when folks in urban areas are getting reception on three or more channels. Given the authority as prescribed in my bill, the FCC could be counted on to resolve interference problems, set equipment and installation standards, plan and help set up new booster stations in order to reach even more rural families and, in that way, better serve an important segment of the American public.

The CHAIRMAN. Thank you, Mrs. Pfost. We appreciate your interest in this matter.

Mrs. PFOST. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is our colleague from Washington, the Honorable Walt Horan. Mr. Horan, we will be glad to hear you at this time.

STATEMENT OF HON. WALT HORAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. HORAN. Mr. Chairman, I want to commend and thank the members of this subcommittee for their time and interest in holding a hearing on this legislation.

The people of America found a new and amazing source of entertainment and information with the advent of the radio. At first, only a privileged few could afford this "luxury," but soon nearly every family in the country was able to gather around their radio sets and enjoy their favorite programs.

An analogous situation can be found in the history and progress of television. At first it, too, was a luxury, but today almost everyone can enjoy good, economical, and practical television reception. The passage of this bill will do much in helping to insure every family in America the right to economical and good television.

Almost every sizable city in our Nation has a television station and residents of these cities have no problem in picking up the signal on their TV screens. In some smaller cities, a television cable firm brings a signal from a nearby TV station into the viewer's set. In other areas, where the general terrain is flat, a UHF translator facility rebroadcasts the parent transmitting station's signal to the home TV sets. But what of the thousands of families who live in communities located in the valleys of our mountainous areas? So far as I know, nobody has yet devised a method for transmitting a television signal through a mountain.

In the Fifth Congressional District of Washington State, which I have the honor of representing, there are many isolated communities located in mountainous areas. In most cases, the signals from the parent transmitting stations do not reach the homes in these "fringe area" towns. If the signals are strong enough, they are usually stopped by a mountain. As a result, the people living in these areas have sought ways and means of bringing these signals into their homes. Keep in mind that in such small, isolated areas, recreation and entertainment facilities are at a premium, and as a result, good TV reception means a great deal.

The residents of these areas discovered that there were several ways available to them for securing television. One method is the cable, where a private firm hooks up individual TV sets to a central cable and through electronic procedures brings the picture into the TV sets. These systems are practical and economically feasible in metropolitan areas where there are enough people available to financially justify their operation. In the remote mountain areas, however, this method simply cannot break even cost wise. Another method investigated was the ultrahigh frequency translator. I am advised that a UHF operation, where a TV signal is amplified and rebroadcasted through ultrahigh frequency bands, is not suitable in mountainous areas. It is feasible in areas of flat terrain but it is not conducive to "bend" around mountains.

Finally, these citizens found the solution to their problem in the VHF television reflector which provided the most simple and least expensive method of transmitting a signal. Through such facilities, TV set owners are able to bring a clear picture into their sets. The Federal Communications Commission, however, declared that these VHF facilities were illegal and ordered further operation of them be discontinued or that they be converted to another approved method such as the UHF translator.

The members of this committee, of course, are aware of the succeeding events which occurred between the FCC and the booster operators, and thus I do not feel it is necessary to once again bring them to your attention.

In conclusion, I sincerely hope that this subcommittee will take quick and favorable action on this important legislation. All the people desire and expect of this committee is that the committee help them to help themselves by granting the necessary authority which will allow them to receive good, practical, and economical television reception.

Thank you.

The CHAIRMAN. Mr. Horan, we appreciate your appearance and testimony. Thank you very much.

Mr. HORAN. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is our colleague from Montana, the Honorable LeRoy Anderson. Mr. Anderson, you may proceed.

STATEMENT OF HON. LeROY ANDERSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MONTANA

Mr. ANDERSON. Mr. Chairman, it is my pleasure to appear before your committee today in support of legislation dealing with the so-called TV booster stations in my district and other parts of the Rocky Mountain States. Specifically, I am supporting H.R. 11040, by Mr. King, of Utah, and similar bills which have been introduced in the House and Senate by representatives from the States where these boosters are located.

In the eastern district of Montana, which covers three-fourths of our great State, there are 79 of these booster stations of the State's total of 108. Montana's VHF TV boosters serve nearly one-third of the entire population of the Treasure State. In fact, one such station is located near my home in Conrad where it was erected in about 1955 in order that our citizens might receive signals from a station of 60

some miles distant. The first TV booster in Montana was erected in 1954 in Shelby.

These 108 VHF TV boosters in Montana range in size from one-twentieth watt to 1 watt. To the best of my knowledge, they cause no interference and are extremely limited in operation because terrain factors quickly stop emanation from the very low power units involved. I would like to point out that these are all nonprofit community effort stations erected by the citizens of Montana who believe that, as the Constitution of the United States under article I so guarantees, they have a right to see and hear what is going on about their Nation as a form of freedom of speech and of the press.

We have a vast, largely agricultural, region in Montana which is the fourth largest State in the Union. There are no great concentrations of population such as are found in the Midwest, the east coast and the west coast areas. Construction of local TV stations and their operation are costly because of the limited market for advertising sales essential to continued successful operation. Consequently, we must recognize the inherent right of Americans to be able to receive the information which television so quickly and adequately presents. If the United States as a whole were to restrict one-third of its populace from receiving television signals, I would judge a vast national clamor would arise which Congress would recognize and do something about. The same is the case in Montana where one-third of our populace depends on booster stations.

Now, gentlemen, we are only asking that Congress give the Federal Communications Commission authority to license TV booster stations, including those already constructed, subject, of course, to necessary rules and modifications for efficient operation and to prevent interference in local areas in later years if such situations might arise. Two of the FCC Commissioners, at field hearings in Montana, agreed that booster stations are necessary if the people in the Rocky Mountain States area are to receive television.

Therefore, I urge your most favorable consideration of the legislation being considered for the licensing of existing VHF television booster stations in our region.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Anderson, for your appearance and testimony.

Mr. ANDERSON. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is our colleague in the Senate. Hon. John A. Carroll. Senator, we will be glad to hear you at this time.

STATEMENT OF HON. JOHN A. CARROLL, A U.S. SENATOR FROM THE STATE OF COLORADO

Senator CARROLL. Mr. Chairman, it is my sincere hope that this subcommittee, after careful study of the questions involved, will see fit to report this bill, S. 1886, and to recommend its passage.

There are few pieces of legislation on which the people of my State of Colorado have expressed themselves with more vigor than they have on this: The people of my State want this bill to pass. They want their operating TV booster stations to continue in operation. They want their television—and I for one believe they should have it.

Colorado has more than 900 peaks over 11,000 feet high. The

mountain part of the State is an area of mining towns in high valleys and ranching, farming towns on high plateaus. By the very nature of the geography, these people cannot simply set up individual antennas to receive a television signal. Television signals travel only by line of sight, and without TV boosters, mountain people would have none of the benefits—entertainment and educational—of television.

These booster stations, often built with cooperative financing, operate on the VHF bands, and so far as I have been able to determine, they do not interfere with the operation of any other authorized communication service. VHF systems, I understand, are cheaper to install, easier to maintain, and more efficient to operate than are UHF systems of rebroadcasting.

To require mountain communities to switch from their present VHF to UHF would be simply to put television beyond the economic means of most small Colorado towns.

From January 5, 1959, the day of the FCC report and order to halt the operation of these booster stations, I have worked to insure continued low cost television reception for the people of my State. On January 23, 1959, I introduced for myself and 10 other western Senators, Senate Concurrent Resolution 4 which declared in part:

> It is the sense of the Congress that the Federal Communications Commission should (1) authorize the operation of VHF television booster or repeater stations * * * and (2) modify such of its rules as may be necessary * * *.

I was of the opinion then, as I am now, that the power to license existent TV boosters is already embodied within the Communications Act.

However, the Senate Communications Subcommittee after extended study and after numerous hearings came to the conclusion that additional legislation is necessary to make it unequivocally clear that the FCC has the power to license these booster stations. S. 1886 is this legislation and I heartily endorse it.

I have received letters in support of S. 1886 from city and county officials, from schoolteachers, ranchers, miners, young and old people.

I have received petitions, resolutions, and wires.

I have heard from the following Colorado communities: Alma, Aguilar, Basalt, Bristol, Canon City, Carbondale, Coaldale, Cortez, Crawford, Crested Butte, Craig, Cotopaxi, Dolores, Dove Creek, Doyleville, Gilman, Grand Junction, Gunnison, Glenwood Springs, Hesperus, Hotchkiss, Ignacio, Julesburg, Kremmling, Lamar, Lazear, Lewis, Lake City, Mancos, Marvel, Meeker, Montrose, Naturita, New Castle, Norwood, Nucla, Ouray, Paonia, Pagosa Springs, Pleasant View, Rangely, Ridgway, Redvale, Rifle, Silverton, Steamboat Springs, Telluride, Trinidad, Uravan, and Wolcott.

As an example of the content of these hundreds of letters, I should like to quote Mrs. W. R. Bevans of Silverton, Colo., who writes:

> In the first place you know that we are a mining town and with the mining industry as it is at this time, there isn't a spare dime in the whole county for entertainment; even the movie here had to close all but two nights a week and then the picture is repeated, so there is little to keep our young folks entertained on snowy cold windy nights. After some thought several of our men climbed high on the top of a 12,000-foot mountain and with some of the hardest and coldest work made a road and carried the wire and needed equipment up there and worked weeks to bring television to Silverton. Over 100 families bought good receiving sets and the cost of the special aerials and converters, now the cost of the con-

version to ultrahigh frequency, should the FCC have it's way, will be out of the question for any family and the lodges and clubs can't possibly raise that much money.

S. 1886 is a simple proposal. It would in no way harm or infringe the operations of community antenna systems. Boosters and CATV present different questions and are being considered in separate bills.

It allows the FCC to waive the requirement that a licensed operator be present during the transmission of a rebroadcast signal, recognizing that with modern equipment such an operator would be an unwarranted expense.

It allows the FCC to license booster stations already in existence when doing so would serve the public interest, convenience, and necessity.

This bill gives the FCC clear authority to license present boosters but it says nothing about licensing proposed boosters to be built in the future. This is right and proper.

For the present Communications Act already empowers the Commission to license stations not yet built. This power to license new boosters has been publicly recognized by the FCC when it announced that it was drawing up regulations to be used in such a licensing process.

Mr. Chairman, the booster question is a straightforward matter and its solution is found in S. 1886.

I urge as strongly as I am able that it receive favorable consideration from the subcommittee.

The CHAIRMAN. Thank you, Senator Carroll. We also have Senator Gordon Allott, of Colorado, who is interested in this problem. Senator, we are happy to have you and you may proceed with your statement.

STATEMENT OF HON. GORDON ALLOTT, A U.S. SENATOR FROM THE STATE OF COLORADO

Senator ALLOTT. Mr. Chairman, my feelings with respect to the dire need for prompt action on legislation such as that embodied in S. 1886 are well known. It is particularly vital to the hundreds of small communities dependent upon booster television. Many of these are located in my own State of Colorado.

In order to obtain the benefit of television entertainment, education, and news coverage, small towns have joined together within their own communities to establish some sort of repeater setup. This has mostly resulted in what we know as "boosters."

Although considered by the Federal Communications Commission to be in violation of the Communications Act, their operation has long been overlooked by the FCC. Indeed, the Commission even now has suspended action on its order of December 1958 to shut down all existing boosters—an action indicative of its desire for direction in this matter from the Congress.

Because of the importance of television as an information medium, the people who look to booster-supported TV have necessarily become an integral part of any decision we make on S. 1886. I have received over 8,500 letters from people all over the West urging approval of this bill. For example, a letter from one of our mountain-locked Colorado communities put it in these words:

I know that our own (booster) TV operation here above the ranch which serves Salt Lake City is very much needed, and I don't nkow how we'd get along without

same. During these long winter months, it is indeed a pleasure to sit back and watch TV.

During the preparation of Senate Joint Resolution 26 which I introduced, and which was later incorporated into the bill now before this committee, I did a great deal of research into the alleged problem of interference with airplane communications which these boosters supposedly represent. The FAA informed me that they have never received a formal complaint of such interference. A letter from the superintendent of schools in Manitou Springs, Colo., who has also looked into this question, brings more evidence to bear. In part, it says as follows:

A check with police officers in our area showed that they experienced no interference from the booster. It certainly is not in a position to interfere with air travel.

Finally, there is the matter of power generated by these boosters. Most are a mere two-tenths of a watt, hardly enough to emit a damaging, long-range signal. Indeed, they transmit barely enough energy to provide a viewable picture to the farm and ranch families whom they are intended to serve.

The question of so-called translators was also discussed at great length prior to passage of S. 1886 by the Senate last year. I am certain, Mr. Chairman, that you and the distinguished members of this committee are familiar with the arguments propounded. In summary, the problems connected with translator TV are (1) the more powerful signal so transmitted tends to bounce from mountain walls such as those in Colorado and produces a double image; (2) the question of cost to the viewer is great. Estimates range from $50 to $150 per home TV set for adaptation to the translator signal; (3) cost to the community. Again, estimates show that an average of $4,000 is involved in the changeover from boosters to translators.

The magnitude of the problem is further enlarged when one considers the investments already made by people in setting up their community booster operations. Because of these many aspects of the controversy, the complete facts are difficult to obtain. The dissenting opinions in a decision of the FCC upon the subject reflect that.

In conclusion, I should like to quote from a letter I received from a Colorado educator. It more clearly defines the value of booster-supported TV than any other I have received.

My main concern is for the educational possibilities. We teachers have noted a distinct change in our students since (booster) TV was made available to us. The students are much better informed on current world problems.

Mr. Chairman, I urge with all the sincerity at my command that you act promptly and favorably upon this measure so that this Congress may guarantee uninterrupted television to the thousands of people depending upon boosters.

The CHAIRMAN. Thank you, Senator.

Senator ALLOTT. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is our colleague from Arizona, the Honorable Stewart L. Udall. Mr. Udall, we will be glad to hear you at this time.

STATEMENT OF HON. STEWART L. UDALL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. UDALL. Mr. Chairman and members of the subcommittee, I am here today to urge that the subcommittee give favorable consideration to S. 1886 which, briefly, would legalize the operation of numerous very high frequency television booster stations that, in most cases, provide the only means of television reception to the residents of small communities and rural areas in the West.

There is little need to review the background of the situation which makes enactment of this legislation advisable. The matter has been studied at length, and the details will be covered by many other witnesses. I would say, though, that these low-cost VHF boosters have been serving relatively remote areas of my State for several years without causing appreciable interference with other radio communications facilities. And, since the TV sets of the viewers don't have to be converted to ultrahigh frequency—as is the case with translators—viewers are spared this additional expense.

Obviously they were distressed when the Federal Communications Commission on January 5, 1959, announced, through its report and order in docket 12116, that it would not adopt regulations authorizing the operation of boosters in the VHF band and would institute legal action to halt unlicensed operation of boosters within 90 days unless operators of the boosters announced plans to convert to some authorized type of operation.

I was one of the sponsors of a "sense of Congress" resolution which informed the FCC that the boosters should not be halted unless there is proof they are causing objectionable interference with other communications.

It was gratifying to me that the FCC delayed execution of its order and later announced that if satisfactory legislation were enacted, the boosters now in operation would be licensed without the necessary construction permits. I agree with the FCC that there should be construction standards and regulations governing the boosters, but persons who depend on them for television reception should not be penalized by the forced closing of boosters which were in operation prior to the order of January 1959.

This bill, which would amend section 318 of the Communications Act of 1934 so as to grant the FCC discretion to waive, if the public interest, convenience, and necessity warrants, the statutory requirement concerning the operation of transmitting equipment used in booster or rebroadcasting operations, and section 319 of the same act in order to give the FCC discretion to waive the requirement of a construction permit for booster stations constructed on or before enactment of this bill, deserves support.

Because of the uncertainty which has surrounded the operation of boosters since January 1959, I hope action can be taken by the committee and by the House before adjournment.

I appreciate the committee's courtesy in giving me the opportunity to make this statement.

The CHAIRMAN. Are there any questions? Thank you very much, Mr. Udall.

Mr. UDALL. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is our colleague from Colorado, the Honorable Wayne N. Aspinall, the distinguished chairman of the Committee on Interior and Insular Affairs.

Mr. Aspinall, we are happy to welcome you to this committee.

STATEMENT OF HON. WAYNE N. ASPINALL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. ASPINALL. Mr. Chairman, I want first to express my appreciation to the committee for scheduling these hearings today relative to S. 1886. This is a matter which is of particular interest to people living in the western part of the Nation, where great distances and rugged terrain give rise to problems regarding television reception that are not found in other regions of the Nation.

I know that the people I represent are especially appreciative of the committee's consideration of S. 1886, and they are extremely hopeful and desirous that this matter can be dealt with during the current session of the Congress. As this committee knows, isolated communities in the mountain West have been operating VHF boosters for several years without having been authorized by the FCC. For almost 18 months now they have been waiting for Congress to take action such as that proposed in S. 1886, which would permit the FCC to authorize and license VHF boosters that are already in operation.

Presently, these boosters are operating under a grace period that is scheduled to expire June 30. While the FCC has previously granted extensions of the grace period, and might be expected to do so again, this obviously offers no hope of a more lasting solution to the problem. Since the FCC has taken the position that VHF boosters are operating illegally, and that an amendment to the Communications Act is necessary before it can authorize and license VHF boosters that were constructed without obtaining a permit, this legislation appears to offer the best hope for an early solution. The alternative would appear to be the forcible closing down of VHF boosters that are presently operating.

I am sure the committee does not want this to happen. Such action would be contrary to the goal of making the greatest possible degree of communication facilities available to communities throughout the Nation. It would also amount to penalizing the residents of small, isolated communities for their initiative in providing themselves with a communication facility that they desired.

The district which I represent in Congress—Colorado's Fourth Congressional District—comprises an area almost the size of the State of Pennsylvania. It is rugged country, containing most of the Colorado portion of the Rocky Mountains. It is a land of vast distances. It is sparsely settled. The towns in my district are for the most part widely separated and their population is numbered in the hundreds or a few thousand. The preliminary census figures for 1960 give a population of 18,500 for the largest city in the district. The second largest city has a 1960 population of 10,300; the third largest 6,600. All of the rest of the towns in my district—an area of almost 40,000 square miles—have a population of less than 5,000. In many instances, towns are located in mountain valleys where TV signals cannot reach without the aid of a device such as the VHF boosters.

I emphasize these facts to make it clear that in large areas of the West, such as that I represent, VHF boosters offer the only practical method for the people to receive television signals from distant stations, or from anyplace else. In my entire congressional district there is only one local TV station, which also operates a single semisatellite station. There are two CATV operations in my district. The balance of the communities throughout western Colorado depend on VHF boosters. When UHF translators were authorized by the FCC, several communities went to considerable expense to install translators, but they have not been satisfactory. One community has discontinued their use and gone over to a VHF booster operation. In addition to being considerably more expensive to install, the UHF translators do not provide as good reception as do VHF boosters. At least, that has been the experience of communities in my district.

I should also like to emphasize to the committee that, in every case, the construction of the VHF boosters has been a community project, financed through voluntary contributions. Their cost of operation has also been financed in that manner in most communities.

These people, I am sure, have no desire to operate VHF boosters that will cause serious and dangerous interference to airways communications, or to other TV operations. While the FCC has maintained that such interference from boosters is theoretically possible, there is not, to my knowledge, a single recorded case of such interference from any of the boosters operating in western Colorado.

Mr. Chairman, I am certain that the people in western Colorado desire to continue to operate their VHF boosters, but within established laws and regulations rather than illegally as at present. I urge the committee to approve S. 1886 and bring it to the floor of the House so that it may be considered during the current session of the Congress. There appears to be no logical reason for further delay in consideration of this legislation.

The CHAIRMAN. Mr. Aspinall, we appreciate your taking time from your busy schedule to appear here on behalf of this legislation. Thank you very much.

Mr. ASPINALL. Thank you, Mr. Chairman.

The CHAIRMAN. The next witness is the distinguished Senator from Utah, the Honorable Frank E. Moss. Senator, we are glad to have you.

STATEMENT OF HON. FRANK E. MOSS, A U.S. SENATOR FROM THE STATE OF UTAH

Senator MOSS. Mr. Chairman, television has become almost as much a part of the American scene of the 1960's as the automobile, the supermarket, and the drive-in. It is axiomatic that people will find some way to bring television into their homes. Nobody is going to be denied its pleasures if they can be obtained reasonably.

It is my opinion that every American home should be able to receive at least one free television signal and, eventually, if FCC policies and priorities can make this possible, every American community should have its own television station. A TV station helps to give a community a voice, and its place in the neighborhood of communities, and in the State and Nation.

Because it is not feasible at this time, either from an engineering or financial standpoint, for all communities to have their own TV stations, other systems of bringing the TV signal into American homes have been devised. One of these is the VHF TV repeater or booster, the subject of the legislation before this committee today. In many areas of the country—particularly in areas isolated from population centers—the booster is the easiest and most economical way of assuring television reception to a maximum number of people.

In the mountainous areas of the West, where major television broadcasting stations are restricted to large population centers, the use of low-cost, low-powered boosters began almost simultaneously with the development of broadcasting. Through them TV has been made available to thousands of people in medium-sized and small towns. The Federal Communications Commission has asked for enactment of the bill before the committee before adopting regulations which would permit the licensing of VHF booster operations.

Because of my many previous statements on this subject, as principal sponsor of S. 1886, I shall make this one very brief. Also, the case for Utah will be ably presented by its two members of Congress, the Honorable David S. King and the Honorable Henry Aldous Dixon, and by Mr. Kendrick Harward, president of the Utah TV Repeater Association and Sever County commissioner, Mr. Ray Nash, Uintah County attorney, and Mr. James P. Alger, Carbon County attorney, who have come to Washington especially for these hearings.

I would like only to point out that geographically speaking, most of Utah is covered by repeater-type television service. Many communities have appropriated money and are waiting authority to construct booster-type facilities. Other communities, which have had facilities for a long time, are facing the loss of this service because of the refusal of the FCC to license their operations without the authority contained in this bill.

I am advised that commercial television stations in the State of Utah have no objection to the booster operations and, on the whole, are anxious to have the communities boost their signals because it will provide more viewers and customers. I also understand that the commercial television stations in the State would like very much to be able to cooperate with booster operators to assure that engineering is sound.

Most important, there has not been a single case that I know of in Utah where booster operations have interfered with other communication services.

The Senate has already passed this bill. I am hopeful that out of these hearings, and the work of this committee, will come action which will assure television service to thousands of viewers dependent upon booster operations in my State of Utah and elsewhere in the country.

The CHAIRMAN. We are glad to have the Honorable Frederick W. Ford, Chairman of the Federal Communications Commission. Mr. Ford.

I observe you have some of your colleagues with you here. I believe the record should show their presence.

STATEMENT OF HON. FREDERICK W. FORD, CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION; ACCOMPANIED BY COMMISSIONERS T. A. M. CRAVEN, JOHN S. CROSS, AND ROBERT E. LEE; JOHN L. FITZGERALD, GENERAL COUNSEL; AND EDWARD W. ALLEN, JR., CHIEF ENGINEER

Mr. FORD. Commissioner Craven, Commissioner Cross, Commissioner Lee, are here with me. Commissioner Bartley is out of the country on official business.

The CHAIRMAN. We are very glad to have each of you here with us.

Mr. FORD. The Commission appreciates the opportunity to express its views on S. 1886. This bill would empower the Commission to exercise discretion not permitted under the Communications Act as it stands, in dealing with problems raised by the development of broadcast repeater services in the VHF band.

There is, I think, no need to recite in detail the circumstances which gave rise to recommendations by the Commission that legislation be enacted essentially on the lines of S. 1886. As you know, it has not yet become possible to provide to some of the sparsely settled areas in the country television service which can be received directly from regular television stations. Particularly in the Western States, serious shadowing in deep valleys and remoteness from the transmitters of regular stations has necessitated the use of ancillary devices for bringing service to local residents. One of the means for doing this is placing a receiving antenna at a favorable location, amplifying signals so received, and retransmitting the amplified signals to an area lacking direct service.

Recognizing the need for, and the utility of, such devices, the Commission in January 1956, after appropriate rulemaking proceedings, opened the way to the authorization of television repeaters which convert incoming signals—usually VHF—to the UHF band for retransmission: 300 UHF translators have been authorized, 270 are operating, and from all reports are rendering a highly satisfactory service.

Notwithstanding this, numerous small groups and communities in Western States have from the beginning evinced a strong desire to utilize repeaters which retransmit in the VHF band. While our information is incomplete, it appears that since the promulgation of rules permitting the authorization of UHF translators, considerable additional numbers of VHF repeaters have been installed without the Commission's authorization, and that the total number may now be in the vicinity of 1,000.

At earlier stages, the Commission, after conducting careful inquiries in docketed proceedings, has, on three occasions, reached the conclusion that, owing to the fact that the interference potential of VHF repeaters was more serious than in the case of UHF translators, it would be desirable that all repeater services be placed in the UHF band. In order, however, to afford further opportunity for restudy of the matter, the Commission in January 1959, announced a policy of deferring action, looking toward the replacement of VHF repeaters with UHF translators, and has by successive extensions continued down to the present time a grace period during which action with respect to unlicensed VHF repeaters has been withheld. Weight must be given to the fact that during this period the numerous VHF

repeaters have continued to render a satisfactory and reasonably trouble-free operation to a substantial number of people residing outside the normal service area of icensed stations. In view of this, and giving due recognition to investments made by community groups in VHF repeater devices, the Commission has given further consideration to possibilities for authorizing the use of VHF repeaters.

It was recognized, however, that the present provisions of sections 318 and 319 offered difficulties which made it desirable to recommend to the Congress the adoption of amendments on the lines proposed in S. 1886.

Section 318 imposes a requirement that all transmitting apparatus be operated by a person holding an operator's license. It provides further that the Commission, if it finds that the public interest, convenience, and necessity would be served, may waive this requirement except as to certain types of facilities, one of which is stations engaged in broadcasting. Since the repeaters in question are broadcast stations, under the act as presently written they are subject to the requirement of a licensed operator without the possibility of a waiver of this requirement by the Commission.

Section 1 of this bill would give the Commission discretion to waive the operator requirement with respect to television repeater stations if it found that the public interest, convenience, and necessity would be served thereby. The Commission believes that in view of the nature of television broadcast repeaters, they will, if properly designed and installed, require only minimal attendance for the performance of functions for which a regularly licensed operator should not be necessary.

In its inital recommendations, prior to passage of the instant bill by the Senate, September 11, 1959, the Commission had recommended the removal of all limitations on its discretionary power to waive the operator requirements of section 318. It was, and still is, our belief that the original basis for the statutory mandate requiring operators has long since disappeared and that the rapid and continuing technological changes in the radio field make it desirable that the Commission be given discretion with respect to operator requirements at all broadcast stations. Inasmuch as the bill as passed by the Senate and which is presently before you deals effectively with the immediate problems which confront the Commission with respect to repeater stations, we are, of course, prepared to support the bill in its present form.

The second section of this bill would amend section 319 of the Communications Act, which deals with construction permits, and more precisely paragraph (d) of that section, which provides for waivers of the requirement of a construction permit. Enactment of this amendment would remove obstacles to the licensing of devices installed and operated without prior Commission authorization. As you will readily recognize, conferring this discretionary authority on the Commission would greatly facilitate the orderly regularization of existing VHF repeater operations under suitable conditions and requirements aimed at minimizing their potential for disruptive interference to reception of VHF signals transmitted by television broadcast stations.

To this end, section 2 of the bill would amend section 319(d) of the act by simply adding to it the provision that—

if the Commission finds that the public interest, convenience and necessity would be served thereby, it may waive the requirements of a permit for construction of

a station that is engaged solely in rebroadcasting television signals, if such station were constructed on or before the date of enactment of this bill.

The Commission is hopeful that it may be possible to enact S. 1886 and thereby provide needed tools for dealing with a situation which, involving numerous unlicensed stations, calls for the earliest possible solution.

The CHAIRMAN. Mr. Younger, any questions?

Mr. YOUNGER. Yes.

What differentiation do you make in regard to the ordinary booster station that rebroadcasts a signal, or the one that picks up the signal by cable and brings it into the same territory?

Mr. FORD. One is a radio operation, a broadcast operation, the other is a closed circuit and does not involve the use of broadcasting facilities.

Mr. YOUNGER. All it has is a receiver.

Mr. FORD. It in effect has been described as a giant receiver, and——

Mr. YOUNGER. How do you treat them so far as the Commission is concerned?

Mr. FORD. We do not treat CATV operations at all directly in their reception and distribution. In some instances CATV operations pick up their signals some distance from the town they desire to serve and through common carrier microwave length transmit the signal—well, they transmit it to the point where it is picked up and distributed to the community.

Mr. YOUNGER. That is pay television, is it not?

Mr. FORD. I think there is a distinction between the community antenna operations and pay television, using the two words in their classic sense. Pay television has generally been described as a system whereby the signal is transmitted in a scrambled form and through some device at the receiver is unscrambled to make the signal clear, whereas CATV does not use the broadcast spectrum primarily but uses cable for the purpose of distributing the signal to the receivers.

Mr. YOUNGER. It seems to me the ultimate results are the same. If a person can put up a receiving set on the top of a mountain and by cable take it into the valley and sell the products to the receivers there, that is pay television. I do not see how you get away from that.

Mr. FORD. Certainly the viewer pays for the signal he sees on his screen in both instances, both CATV operations and in the so-called pay television.

Mr. YOUNGER. Under your new regulations I think you are going to test pay television in one area, is that true?

Mr. FORD. Well——

Mr. YOUNGER. You have authorized it?

Mr. FORD. We have not authorized it yet. As I understand we have one application on file.

I wasn't sure whether it was filed. There was a press notice it was to be filed. It is for a pay television experimental operation, I believe in Hartford, Conn., but that has not been authorized yet.

Mr. YOUNGER. I gather from a news report it had been authorized. I probably read the story incorrectly.

Mr. FORD. The news report that perhaps you are referring to was an authorization by the Commission for the transfer of control of a UHF

station in Hartford, Conn., which is a preliminary step of those who desire to file the application for this experimental operation, using that particular station. That was merely the transfer of control, and in the papers filed with the Commission in connection with that, they did not ask for the approval only on the basis that the experimental authorization would be granted. It was separated, and is separate and apart from the application for the experimental authorization for pay television.

Mr. YOUNGER. Over that process you have control, and you exercise it, of course.

Mr. FORD. Yes, sir.

Mr. YOUNGER. Where is your control for the operator who puts up a receiving set on the top of the mountain, or some other place and picks up the signal and transmits it through cable to the residents and charges them for it? Do you have any control over that process?

Mr. FORD. We would have no direct control on it. In the event the system reradiated radio signals, we would have control, but other than that we would have no direct control over the operation.

Mr. YOUNGER. With regard to those that exist today, you exercise no control over them at all, which are the small stations. There are a number, I believe, cable stations in the various areas. There are some on the border between California and Arizona, as I recall.

Mr. FORD. That is right. We do not exercise any control.

Mr. YOUNGER. And there is nothing in the law that permits you to exercise any control over them?

Mr. FORD. No, sir, there is nothing in the law, according to our interpretation. We have asked for legislation on that.

Mr. YOUNGER. But on these others now, you will permit the existing booster stations to continue to exist if this legislation is passed.

Mr. FORD. This legislation, we think, is completely separate from the community antenna television problem.

Mr. YOUNGER. I realize that.

Mr. FORD. Most of these operations are in the Western States, and they are local organizations of responsible citizens who want to get a television signal, and under the present law the Commission believes it is prevented from licensing those with existing operations.

We believe that the provision which would permit us to waive the prior construction provisions of the Communications Act is essential to permit us, in addition to the operator provisions, to adopt regulations to permit these people who have these television repeaters to come in compliance with the law.

Mr. YOUNGER. That situation arises from the fact that you have two processes, one application for permitting them to construct and the other a permit for a license.

Mr. FORD. That is right, sir.

Mr. YOUNGER. And these various thousand stations never did have a permit for construction.

Mr. FORD. That is right. They constructed these many times in ignorance, unaware they were required to have a construction permit before building a broadcast facility, so they grew up and suddenly here they are, great groups of fine people with these transmitting devices which the law requires to be licensed, and yet because they constructed them without getting a construction permit, the Commission cannot do anything about it unless we get this particular piece of legislation.

Mr. YOUNGER. Do you know how many counties have authorized the construction of the booster facilities on the basis of taxes?

Mr. FORD. I do not have the information.

Mr. YOUNGER. Such as Mr. Dawson mentioned?

Mr. FORD. I do not have that information.

Mr. MOSS. Mr. Ford, you have authority over these stations, have you not, whether this bill is enacted or not?

Mr. FORD. We have authority over the stations—we have authority to force them off the air.

Mr. MOSS. That is what I mean. You do have authority. What we are giving here is a waiver of the requirement of a permit prior to construction.

Mr. FORD. That is right.

Mr. MOSS. And that is the only additional authority you require of this committee?

Mr. FORD. We need one additional thing with respect to the operators.

Mr. MOSS. That is the requirement of staffing of the stations, or facilities.

Mr. FORD. The statutory provisions requiring operators, yes, sir.

Mr. MOSS. So we are talking about a regulated area?

Mr. FORD. Yes, sir.

Mr. MOSS. And you have been granting the permits and generally regulating the UHF translator. Is a translator and community antenna system the same?

Mr. FORD. No, sir. The translator picks up the signal on one channel and repeats it on another, translates it.

Mr. MOSS. At a different frequency.

Mr. FORD. That is right.

Mr. MOSS. Is that true of cable?

Mr. FORD. No. This is strictly a broadcast operation, radio signals are used, whereas the CATV uses cable and not broadcast facilities.

Mr. MOSS. Are all the stations presently operating on an unauthorized basis VHF community antenna systems?

Mr. FORD. None have licenses. They are all operating.

Mr. MOSS. Are all those operating without licenses?

Mr. FORD. Yes.

Mr. MOSS. You have a group of stations presently operating without license?

Mr. FORD. Yes.

Mr. MOSS. Are these all in one category?

Mr. FORD. Yes, sir.

Mr. MOSS. All VHF?

Mr. FORD. All VHF.

Mr. MOSS. And the Commission has not previously dealt with them because of the more complex nature of the signal, the probability of interference, or the possibility of interference?

Mr. FORD. We issued a cease-and-desist order against one some years ago and that was taken to the court of appeals and the court of appeals reversed the Commission and said we had discretion to issue a cease-and-desist order and our opinion was we did not think we had that, so they reversed that.

In addition to that, the court said the Communication Act provided for use, and the Commission had not properly provided for the use out there.

The effect of it was to reverse our issuance of a cease and desist order. Then the Commission undertook to find a way to bring service to these remote communities, and in doing that adopted the UHF translator rules. But this still is not sufficient because the communities out there invested money in these devices, and in the course of our further study of it over the last 3 or 4 years, we have now come to the conclusion but for these two statutory bars, we would be in a position to give relief to those fine people out there.

Mr. Moss. My question goes to a portion of your statement on the first page in the last paragraph. It would appear the Commission failed to license the VHF facilities because, and I quote, "Owing to the fact that the interference potential of VHF repeaters was more serious than in the case of UHF translators"—has that problem been resolved?

Mr. Ford. May I have our Chief Engineer answer that? I think he can give you the technical information.

Mr. Allen. There were two factors involved in the Commission feeling that the interference potential on the VHF boosters was much more serious than on UHF; one was there is a scarcity of VHF channels. There are only 12 channels in all. These channels would be used not only for the boosters, but they would also carry the main signal from the television stations. If the boosters are not properly installed, put in areas where the main signal is not present, or where they will not interfere with the direct reception of the main signal from a television station, there is a great potential for interference from these devices.

On the other hand, with the 70 channels which were available in the UHF, the Commission set aside a group of special channels on which these translators, UHF, could work and therefore any interference which might operate between the UHF translators would be mutual between them. They would not interfere with the direct signal from the main station. This gave a different type of problem to try to engineer in the UHF translators from the type of problem you had in the VHF boosters where you were using the same channels that you were using for the main stations.

Mr. Moss. That answers the background. That is what I had assumed. My question is, Have you resolved the problem? Here you are asking for authority to waive the permit, the present construction permit.

The problem, if it is as you have outlined, unless resolved, is still with you. Has a solution been found to this problem?

Mr. Allen. We do not see any sure-fire way of putting in our rules the type of regulation which would guarantee a lack of interference ahead of time. What we have done is in our proposed rules make these operations subsidiary to the main operations on the channel and if there is interference caused to the main operation, the latter has a priority over the booster operation.

I think these will have to be worked out on a case-by-case basis to see whether they can be fitted in and operated without interference.

Mr. Moss. You feel you have worked out a satisfactory solution?

Mr. Allen. That is a procedural solution we think that may be practical in this case.

Mr. Moss. That is all I have.

Mr. Ford. Mr. Younger asked a question about the application in Hartford. One of the Commissioners informs me he does not believe that application is on file yet, that it is still in the talking stage.

The Chairman. What application are you talking about?

Mr. Ford. In Hartford for pay TV that Mr. Younger inquired about. I want to correct the record on that point.

The Chairman. I saw a report in the paper only 2 days ago the Commission had approved it.

Mr. Ford. No, sir. That was the transfer of a UHF station in Hartford separate and apart from the application under the experimental authorization for pay TV operations. There are two separate things. The one the Commission has approved is only the transfer of a station which is the normal course. Under the experimental authorization that Mr. Younger was inquiring about, that has not been approved. I was under the impression the application had been filed, but I understand the application is still in the talking stage and has not been filed.

The Chairman. I think somebody better do something about press relationships—no, I would not want to suggest that.

Mr. Ford. There is one other thing that I would like to add——

The Chairman. There was a report in the press a few days ago that the Commission had approved a UHF station in Hartford for pay TV purposes. If that is not true, I think it should be corrected.

Mr. Ford. That is incorrect. We have not approved a pay TV operation in Hartford as yet. There was one other thing in connection with Mr. Younger's question with regard to the difference between CATV and pay TV. Pay TV has separate programs for which they charge. CATV picks up free programs and redistributes those.

Mr. Younger. The station that I was talking about where they pick up the signal by a receiving set on a mountain and transmit it down, they have only the program they pick up free on the air?

Mr. Ford. That is right.

Mr. Younger. That is different from what you say.

Mr. Ford. That is correct, for the CATV.

Mr. Younger. They have a product that costs them nothing and yet they sell at a good price.

Mr. Ford. That is correct. The pay TV, they put on an independent program that does cost them money.

Mr. Younger. That is right. There is a difference in there.

Mr. Ford. I just wanted the record to be clear on that point.

Mr. Avery. Mr. Ford, let me say it is a pleasure to have you before our committee again. As I recall, this is the second appearance you have made before the committee since you have been Chairman, and as technical as this matter is this morning I think it is a little easier to bring into focus than the bill upon which you testified here previously, the code of ethics bill, when we talked about "unusual hospitality" and other items that have no appropriate legal definition.

Pursuing for just a minute here Mr. Younger's question, and going back to these so-called boosters that we are considering here this morning, they are like a community antenna in this respect: They don't either pay for the signal they pick up; do they?

Mr. Ford. No, sir. And neither do they charge for them.

Mr. AVERY. They do not charge? Who pays for this other expensive transmission?

Mr. FORD. A group of interested citizens getting together and they finance it, but it is a free signal anyone can pick up if they decide they do not want to kick in. They can still buy a set and tune in the signal because it is in the free air.

Mr. AVERY. We have made reference here several times, to these 1,000 stations. I do not like to call them stations; they are towers more than stations, and they have been built to rebroadcast these signals, or translate these signals. You state in your statement in 1956, under the rulemaking authority of the Commission the Commission did adopt certain proceedings whereby these towers could be authorized.

Are we to understand then these 1,000 additional towers have been built in defiance of the Commission?

Mr. FORD. Well, I wouldn't say all 1,000 have been built in defiance of the Commission. I think many of them were built by the people who believed they had a right to do that and we are not aware that it was in violation of the Communications Act. There are one or two States where the legislatures have passed authority for the State itself to license them. So in some instances the boosters have licenses from the States.

Mr. AVERY. Where does the State get their authority to license them. Has the court ever spoken on that particular point?

MR. FORD. I do not believe so.

Mr. AVERY. I do not think they have. Did I understand you to say it was a district court of appeals?

Mr. FORD. For the District of Columbia.

Mr. AVERY. That had overruled the Commission on their cease and desist order for this one particular booster station.

Mr. FORD. Yes. In the case of *C. J. Community Services, Inc., Bridgeport, Wash.*, against the *Federal Communications Commission*, 246 F. 2d 660, the Commission had issued a cease and desist order requiring a booster operation to cease operations. That cease and desist order was set aside and the proceeding remanded to the Commission.

Mr. AVERY. Without getting real involved, set aside on what basis?

Mr. FORD. The Commission said this booster was being operated outside the authority of section 301 of the Communications Act. However, the Court said that while the Commission's authority did include the booster station in question, it was equally clear that section 301 also reflected the intention of Congress that the Commission should provide for the use of all of the channels of interstate and foreign radio transmission, something which the Commission had failed to do by not adopting rules under which signals from television stations could be picked up by the boosters and made available to the residents in the service area of television stations.

The Court further said that under section 312(c) of the act the Commission could consider the grounds offered by "a person involved" in a cease-and-desist proceeding why an order should not be issued against him. The Court interpreted that subsection to mean that the Commission had discretion whether or not to issue the cease-and-desist order even though the booster station was in violation of law

and even though it had no station operators as is required under another section of the act.

Mr. AVERY. In the absence of legislation, can we assume more and more of these boosters will be built without any regulation at all?

Mr. FORD. At the present time our actual count is 460, but we have not made any extensive effort to locate and count the exact number. The 1,000 is the estimate we have. In the last few years there have been, we understand, additional booster stations constructed. At the present time there are many people who would like to construct booster stations, who need them, but who are now aware they cannot do it without a license and have withheld action. Others have assumed they would receive the authority eventually and have gone on and constructed them.

Mr. AVERY. The authority of the Commission to restrict construction, or authorize or not authorize construction, has never been tested except in this one case?

Mr. FORD. In this one case. In this case the Court held we had the authority, but they said we should not use it at that point.

Mr. AVERY. I do not want to delay this. I know there are other witnesses. Would you appreciate it if the committee would see fit to pass this particular bill of setting some guidelines as to what might constitute the public interest, convenience, and necessity in this case, or does the Commission feel like they have sufficient experience to rule on that?

Before you answer that, let me say this—I am a little concerned about this. It seems to me we have a potential here for a vehicle to pirate some markets in an operation like this. If we have a $2 million facility here that has a market, and it is a marginal operation anyhow, just barely making a reasonable return on its investment, and they assume—they have a captive market, or a market they consider mostly theirs, that they can submit to their potential clients and have exclusive coverage over X number of square miles. Although that market is being pirated to some extent by these unauthorized boosters, I do not want to leave the impression here that we are giving our sanction to some other type of broadcast authority entering into this market with a substantially less investment and disrupting and perhaps destroying a market that has been considered stable and dependable for one legitimate—and I use that term advisedly—broadcast facility.

Mr. FORD. If I understand your question, there is a one-station market.

Mr. AVERY. One clear signal.

Mr. FORD. One clear signal; and the booster picks up that one clear signal and retransmits it——

Mr. AVERY. That is not the situation I am trying to describe. They go 500 miles away and pick up another signal and distribute it in this one market.

Mr. FORD. Under section 325 of the Communication Act, to rebroadcast a signal using a broadcast facility, you must obtain the consent of the originating station.

Now, if the originating station gives the consent, then a competing signal through the means of a booster could be authorized under this legislation.

Mr. AVERY. What consideration would be given by the Commission toward the profitable operation of this existing facility already in this market?

Mr. FORD. I do not think we can give you a particularly good answer, but I will try to point out what the problem is. In a situation of that kind where you have one station operating and a booster wants to bring in a competing signal——

Mr. AVERY. That is it.

Mr. FORD (continuing). Then the question is whether or not the Commission would look at the economic situation with respect to the existing station and say that the people in that area should not have a choice of signals because if they have a choice of signals the first station will not survive economically.

At the present time the Commission has not regarded that kind of a situation where there is no duplication of the signal of the local station as being a matter under which it should take action.

Mr. AVERY. That would not be an issue in the case, in other words.

Mr. FORD. I don't believe it would. A booster is only 1 watt. Perhaps if I gave you what we have in mind as the objectives of the booster regulations, we would probably promulgate.

Mr. AVERY. I would like to have that information.

Mr. FORD. The proposed rules contemplate:

(1) Limit of 1 watt on power input, but increase in effective radiated power that might be achieved by directionalizing the antenna is permitted.

(2) Booster must afford complete protection to all other licensed radio signals.

(3) Use of on-channel VHF booster amplifiers prohibited.

(4) No protection afforded a VHF booster from licensed or other VHF boosters.

(5) Require installation to provide a positive means for on and off control of the transmitter at a readily accessible point.

Now, with such restrictions on a low power booster operation, it is highly unlikely that the economic competition to an existing licensed station would cause them any serious problem at all with respect to selling their program.

Mr. AVERY. I am glad to have your comment on that. Maybe I had magnified in my own mind the seriousness of the problem. In my area it is just about your breaking-off point of a densely populated area and an area of rather sparse population. So this is an item of considerable interest in my part of the country. I see the gentleman from Wyoming, Mr. Thomson, in the room, and I know he has a considerable interest in this matter as it affects his Stae of Wyoming.

I am glad to have your comments on that. I am not completely sure in my own mind that the economic factor in existing facilities should be entirely disregarded.

Mr. FORD. The point that you are making in this area has been argued very extensively in the community antenna television situation, but we do not visualize the same force here that was argued in that situation.

Mr. AVERY. I think that is all.

Mr. YOUNGER. This bill, if enacted, gives you the privilege of approving, or waiving, the requirement for a permit. In that waiver, will you do this—see if there are any stations which are bringing in

a signal from an outside station into a competing area? That you will investigate such cases as against the ordinary procedure of a station that is just repeating into a valley a signal not reached by a transmitter.

Mr. FORD. The facility would be there, but in the event the existing station protested and alleged economic grounds, that would require the Commission to make a determination at that point.

Mr. YOUNGER. In other words, I would not wish this bill, if enacted, to make a blanket waiver of the type of operation that Mr. Avery was mentioning. I think you ought to investigate that rather carefully. If you should run across any of them, you should investigate them.

Mr. FORD. I think Commissioner Lee has a responsive answer to Mr. Younger's statement.

Mr. LEE. I just want to call attention to the fact that when I was out there I had occasion to look at several hundred forms that were sent out to the booster operators, and one of the questions asked was—if you had service there, would you disband the booster? They almost unanimously said, "Yes, if we had service, we would not have the booster." So really there is no incentive for the booster if there is service.

Mr. YOUNGER. Just one remark on that: If the service is there, which is Columbia, and here is another station that can bring in an outside station, say the National Broadcasting programs, there might very well be demand for that.

Mr. FORD. I could visualize a situation developing where, having established the first service, maybe they would want the second.

Mr. YOUNGER. Yes. I want the Commission to make sure they are not giving a blanket authority to everything that is already built.

Mr. MOSS. On that point, it seems to me the question in authorizing, or not authorizing these facilities is public interest, the better serving of the viewing public.

I see no difference here between a community having one station, one operating station, and the entitlement to another channel, either UHF or VHF, and if an applicant comes forward you are going to determine the competence of the applicant to render the public service and not the economic problems of the existing station.

Mr. FORD. But even in that instance the Commission would be required in the event the existing station filed a protest against the applicant for a new station on economic grounds to conduct a hearing and make a determination.

Mr. MOSS. Not solely on the basis of the economic problems of the existing station, but on the broader basis of the public interest.

Mr. FORD. Well, it would be the public interest, and the way that would work is this: If the two stations could not exist economically in that market the public interest would be badly affected if both went bankrupt.

Mr. MOSS. Yes. That is very difficult to establish, because if you have the opportunity to use your set in your home more hours because of a greater variety of programs, the probability is that more people will acquire sets and both operators will be benefited rather than injured as a result of the greater public interest in television in the area.

Mr. FORD. There is a series of cases on this point, and the Commission has taken the position that this is a free enterprise business insofar as there are facilities.

Mr. Moss. We are not compelled to insure a profit in granting the franchises.

Mr. FORD. The courts have alleged where there is an economic injury, then the public interest question does arise, and we have to make the determination.

The CHAIRMAN. What is a booster station?

Mr. FORD. A booster station is an operation wherein a signal is received by an antenna, and through a reradiating device the signal is amplified and rebroadcast on the same channel.

The CHAIRMAN. Well, would you call that an apparatus?

Mr. FORD. Well, I think it could be called that; yes, sir.

The CHAIRMAN. Well, has your Commission so interpreted this?

Mr. FORD. It would be an apparatus, I am confident

The CHAIRMAN. Well, would it be a broadcast station?

Mr. FORD. I think so; it would be broadcasting a signal.

The CHAIRMAN. Then, under the law it would require anyone to operate such a station to have a license?

Mr. FORD. That is right, sir.

The CHAIRMAN. And, there are some 1,000 estimated operating largely in the western section of the country who do not have a license?

Mr. FORD. They have neither a construction permit nor a license; that is right, sir; and they are operating also without operators.

The CHAIRMAN. Well, do these broadcasting stations or apparatuses or whatever they may be called belong to any broadcasting station?

Mr. FORD. No, sir; at the present time they do not.

The CHAIRMAN. Does it own any part of them?

Mr. FORD. So far as I know they do not.

The CHAIRMAN. Do you know whether or not they permitted the rebroadcasting of signals from their stations?

Mr. FORD. In most instances the booster did not ask for consent, but there are some instances in which the station that originates the signal does grant consent to the booster.

The CHAIRMAN. In other words, in some of the instances they want to transmit a signal to a given place that does not at the moment receive a signal and without asking the station or the Commission or anybody else they just go out there and set it up?

Mr. FORD. That is right, sir.

The CHAIRMAN. And start operating?

Mr. FORD. Yes, sir.

The CHAIRMAN. The present section referred to, section 318, says:

> The actual operation of all transmitting apparatus in any radio station for which a station license is required by this chapter shall be carried on only by a person holding an operator's license issued hereunder, and no person shall operate any such apparatus in such station except under and in accordance with an operator's license issued to him by the Commission: *Provided, however,* That the Commission if it shall find that the public interest, convenience, or necessity will be served thereby may waive or modify the foregoing provisions of this section for the operation of any station except (1) stations for which licensed operators are required by international agreement, (2) stations for which licensed operators are required for safety purposes, (3) stations engaged in broadcasting—

And, your Commission interprets such booster operation stations as being engaged in broadcasting?

Mr. FORD. Yes, sir.

The CHAIRMAN. Then, section 1 of this bill, S. 1886, would provide discretion for the Commission with reference to this exception here:

Stations engaged in broadcasting (other than those engaged solely in the function of rebroadcasting the signals of television broadcast stations)——

Mr. FORD. Yes, sir.

The CHAIRMAN. In other words, this would modify to a certain extent the rebroadcast section of 325?

Well, I see people are shaking their heads, but I disagree, because under section 325 it says they must have express authority from the originating station and this gives you opportunity to except this kind of operation.

Mr. FORD. This particular section of S. 1886 applies only to the operator who is a technical man and does not apply to the requirements contained in section 325.

The CHAIRMAN. Well, then, in section 319 you proceed to legalize everyone of these where the Commission may find in the public interest? Is not that true?

Mr. FORD. Yes, sir.

The CHAIRMAN. Well, now, in what way, then, does that modify section 325?

Suppose you legalize it and they still do not have the consent of the initiating station?

Mr. FORD. Section 325 deals with rebroadcasting programs. Section 2 of S. 1886 deals with the construction of a station.

The CHAIRMAN. Construction of a station for rebroadcasting. That is what booster stations are.

Mr. FORD. That is right; but it is construction prior to an authorization by the Commission.

The CHAIRMAN. Yes; I know but these are already constructed.

Mr. FORD. If they were licensed by us under section 2 of S. 1886, they would only get a license provided they complied with section 325.

The CHAIRMAN. Yes. Under the second section existing boosters would automatically get a license unless the Commission finds it in the public interest that they should not continue?

Mr. FORD. Well, that, we think, under section 319 is the section that governs a construction permit and prior construction.

The CHAIRMAN. Let us read what it says:

If the Commission finds that the public interest, convenience, and necessity would be served thereby, it may waive the requirement of a permit for construction of a station that is engaged solely in rebroadcasting television signals, if such station was constructed on or before the date of enactment of this act.

In other words, this bill, to that extent, legalizes every illegal station that is now in existence, if the Commission so finds in the public interest?

Mr. FORD. Commissioner Hyde would like to answer that question, Mr. Harris.

Mr. HYDE. Mr. Chairman, if this bill is passed and the Commission is authorized to waive the requirement for a CP, we would still have to make the finding before issuing a license to legalize the operations of the booster, and that to do so, would serve the public interest, convenience, and necessity.

Now, the Commission did not make the finding that this operation would serve the public interest, except this operator would show he is complying with other provisions of the act, such as 325. The act

provides—and this is a substantive provision—that a broadcasting station may not rebroadcast programs of another station without its consent. That is a legal requirement. We could not find an operation that did not comply with that requirement as being in the public interest, and for that reason, I would urge that the passage of this act would not condone continued operation of the 1,000 stations without compliance with 325, simply because——

The CHAIRMAN. Well, I am not raising, Commissioner, the question of whether or not they are complying with section 325. I think this gives the Commission the authority to ignore section 325 if it wants to, if this is passed.

Mr. HYDE. Mr. Chairman, may I respectfully suggest if we did that, the Commission would be finding it in the public interest to approve an operation which Congress says should be prohibited by law. We would not do that.

The CHAIRMAN. I am not sure that I would place that construction on it, Commissioner, because—understand, I am going to be for this bill and I am not arguing here as an opponent, but I think the record ought to be made very clear what we are doing here.

Mr. HYDE. Mr. Chairman, I think that the question——

The CHAIRMAN. There have been questions asked about this all along, but it is a fact that these stations that are now operating have been operating illegally.

Mr. HYDE. Well, Mr. Chairman, I think you do show an appropriate concern about the matter.

The CHAIRMAN. I know; but is this true: They are operating illegally, are they not?

Mr. HYDE. They are operating without a license from us, and in our judgment it would be illegal; and I must say, for the reasons that Chairman Ford explained, it has been impossible for us to prohibit the operations.

The CHAIRMAN. I know. I appreciate your problem there, but I think we might as well get down to the crux of this as to what it means and what it does.

I agree that I doubt very much if the Commission could have permitted this situation to develop because, probably, its attention was not called to it until it got well underway and then I fully realize that a large population in the area out there got involved and instead of cracking down on them they were permitted to go ahead. Now, you have the entire Northwest section of the country where they are in this kind of a situation and where you have signals coming down those valleys out there meeting each other. Until that started happening, then, there was nothing done about it. I realize your problem, and if the Commission cannot deal with it, the Congress ought to. But, I think we might as well recognize what we are doing here, that it is a public interest problem, and that the Commission is asking the Congress to sanction and condone something that it has not been able to cope with.

Mr. HYDE. May I make just a further very brief statement, Mr. Chairman?

The CHAIRMAN. Yes. If I am wrong, I want to know it.

Mr. HYDE. We are dealing with a situation where a public demand for service must be satisfied.

The CHAIRMAN. Well, now, Commissioner——

Mr. HYDE. And it must be satisfied.

The CHAIRMAN. I do not want this record to say that the public demand has got to be satisfied regardless of the provisions of the law.

Mr. HYDE. No, sir; Mr. Chairman, if I may complete my statement, I want to say that we must find a legal and proper way to provide service to people in a way that Congress and the regulatory agency can find proper and in the public interest, of course.

Now, I think the question you raised about whether or not passage of this proposed legislation and action by the Commission would condone a continued illegal operation, is a point that should be raised.

The CHAIRMAN. No; I did not say that. I did not say it would continue. I said it would condone what has developed in the past by illegal methods. It would give the Commission the right to continue his situation.

Mr. HYDE. The overall effect of this——

The CHAIRMAN. You might as well recognize the facts.

Mr. HYDE. I am not disputing the facts that this would authorize the Commission to license what heretofore has been carried on without benefit of a license. Certainly, that is true.

The CHAIRMAN. As I say, I am going to be for it, because I think it needs clearing up.

Mr. HYDE. I think your point as to whether or not the passage of this legislation would authorize without consent, required under 325, needed to be covered.

The CHAIRMAN. And, I think we have covered it now; at least, we have the record made on it.

I believe Mr. Moss has a question.

Mr. MOSS. As I recall, you stated that the district court held that you were not required to issue a cease and desist order. It did not hold that you were powerless; that you could issue a cease and desist order, but it is not mandatory?

Mr. FORD. That is correct.

Mr. MOSS. You are faced with the fact that you have all of these stations operating and, so, you are asking us for two types of authority: (1) to permit them to be operated without licensed operators; that is, the technicians who actually operate the facilities and (2) you are asking for the authority to waive the requirement for preconstruction so that you can proceed to license under sections 301, 308, 309, and 319.

Without the opportunity to waive, you could not license, because you are prohibited from licensing unless there is a preconstruction permit; is that correct?

Mr. FORD. That is correct.

Mr. MOSS. So, the waiver is merely the means to permit the passing of judgment under those sections?

Mr. FORD. That is right, sir.

Mr. MOSS. It does not in any way modify the Commission's responsibility under those sections?

Mr. FORD. That is our view of it; yes, sir.

Mr. MOSS. And, without it, you are powerless to act. You are even powerless to pass on the public interest. You have an alternative of issuing a cease-and-desist order and taking them off the air or permitting them to operate in violation of the law. But you cannot go ahead and license because they are already in operation without a preconstruction permit?

Mr. FORD. That is right.

Mr. MOSS. That clarifies it for me, Mr. Chairman.

The CHAIRMAN. In other words, it does precisely what we said. It gives the Commission some discretion to bring into legal operation what has heretofore developed to be an illegal operation?

Mr. FORD. That is right.

The CHAIRMAN. Now, it does not give the Commission any discretion, however, with reference to construction permits of such stations beyond those that are in operation on or before the date of enactment of this act?

Mr. FORD. That is right, sir.

The CHAIRMAN. In other words, what this does is to cut off this kind of authority right so that it applies only to those that are already in operation?

Mr. FORD. That is right, sir.

The CHAIRMAN. And it will therefore—and I think we should make this abundantly clear to everybody—that if somebody else wants to put up a booster station out there in the future, it this bill is adopted, and he does so he will be in clear violation of the law and the Commission would take him off the air?

Mr. FORD. That is right, sir; unless he complies with the regulations that the Commission issues in accordance with this authority.

The CHAIRMAN. Now wait a minute. This does not give you any authority beyond the date of enactment.

Mr. FORD. Not the authority here, but the authority which the Commission has to adopt rules which will permit VHF translator operations.

The CHAIRMAN. Then, you are going to call this a translator operation in the future?

Mr. FORD. That is what it will be. It will not be on the same channel.

The CHAIRMAN. It will not be on the same channel?

Mr. FORD. A booster picks up a signal on, say, channel 5 and repeats it on channel 5. The rules of the Commission are such that it would pick them up on channel 5 but broadcast them on a different channel.

The CHAIRMAN. That is UHF channels?

Mr. FORD. No, sir; still VHF channels.

The CHAIRMAN. And, you have ample authority under the law to do that now?

Mr. FORD. We have that authority now. So that booster stations——

The CHAIRMAN. I want to ask you a little about that authority, and I will be brief about it:

Do you have authority, then, to zone the country for this purpose?

Mr. FORD. Well, in the television regulations, as you know, we have three zones with different mileage requirements. If there were a sufficient public interest criteria under which we could make that determination, then I think possibly the Commission would have that authority. But, unless it met and was able to demonstrate as a matter of fact that this was a fair and equitable distinction in zoning the country, then the Commission would not have that authority.

The CHAIRMAN. Well, Mr. Chairman, do you not have now under consideration for adoption a report, order, and regulation which would

divide the United States for VHF purposes into two zones? Zone 1 to contain the States of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, and Alaska?

Mr. FORD. We have been importuned—and I am not sure whether a petition to that effect has been filed or not. I am not aware of any rulemaking proceeding which would have that purpose in mind.

The CHAIRMAN. Well, will you check in order to be sure about this in order that the proper information can be contained in your reply?

Mr. FORD. Yes, sir.

The CHAIRMAN. And, whether or not that zone 2 for this purpose takes in all the other States in the country?

Mr. FORD. We do not have such a petition—we do not have such a petition on file. We have had an informal presentation made to some of the members of the staff which would look toward that end, but there is no petition and no rulemaking proceedings in progress at the moment which would have that purpose.

The CHAIRMAN. We have a report from the Federal Aviation Agency. In this report it says that it is assumed that the Federal Communications Commission will issue necessary rules and regulations preventing interference to other communication services such as those required in controlling air traffic.

Is that a proper assumption?

Mr. FORD. I think that is one of the objectives that I read; that we would have rulemaking proceedings that boosters must afford complete protection to all other licensed radio signals.

The CHAIRMAN. In other words, there would be no possibility of interference with aviation whether it is commercial or military?

Mr. ALLEN. Mr. Chairman, I think it is a little strong to say that there is no possibility of interference.

These rules which are proposed are rather flexible rules, and the showings which have to be made are not very extensive because these things have to be kept cheap and economical for these small groups.

We feel that the rules, as written, will make it very unlikely that there will be any interference to other services, including aviation, and there will be procedures for clearing interference in the event that any does occur.

The CHAIRMAN. You cannot take any chances with these airplanes flying in the air, and I think we might as well have that understood now, because if we are, we will reconsider this whole matter.

Mr. ALLEN. Mr. Chairman, we feel that there is no threat, or very serious threat—the operation of a main television station has some threat to all other services, and we have had cases where the harmonics of television stations and the radiations from broadcast stations of various kinds have interfered with other services. But, we have procedures for clearing these up.

The CHAIRMAN. Are any of these commercial stations operating on frequencies below 54,000 kilocycles?

Mr. ALLEN. Which stations have you in mind?

The CHAIRMAN. I am talking about radio and television stations.

Mr. ALLEN. The television stations operate from 54,000 kilocycles in various bands on up to 890 megacycles.

The CHAIRMAN. What is MF?

Mr. ALLEN. MF?

The CHAIRMAN. Yes, sir.

Mr. ALLEN. Medium frequency and that is where the standard broadcast band is—from 300 kilocycles to 3 megacycles.

The CHAIRMAN. That is not the same thing as FM, is it?

Mr. ALLEN. No, sir.

The CHAIRMAN. That is, frequency modulation?

Mr. ALLEN. Yes, sir; from 88 to 108 megacycles.

The CHAIRMAN. What is HF?

Mr. ALLEN. That is from 3,000 kilocycles to 30,000 kilocycles. That is where your oversea communications are principally centered.

Mr. FORD. Mr. Chairman?

The CHAIRMAN. Operating in this area would necessarily affect the communications, particularly naval communications, would it not?

Mr. ALLEN. I do not know whether they are speaking of an area from a geographical standpoint or a frequency standpoint. It is a little vague.

The CHAIRMAN. The Air Force says that uncoordinated MF and HF broadcasting on frequencies below 30,000 kilocycles would adversely affect naval communications.

Mr. ALLEN. None of these, so far as I know, would operate below 30,000 kilocycles. These would all be on television channels from 54,000 kilocycles on up.

The CHAIRMAN. We had that experience with these unfortunate tragedies in commercial aviation, and there are a lot of them in the military. I want the assurance of this Commission in the administration of this that there will be no serious interference whatsoever which will endanger the safety of lives in aviation.

Mr. ALLEN. This is certainly our purpose, and we will do everything in our power to keep this a clean operation and not interfere with these other services.

The CHAIRMAN. I know you are keeping a clean operation, but I want assurance that you will not let it interfere with military flights as well as commercial flights.

Mr. FORD. Our rules will prevent it.

I think one additional thing we should point out is that, in the rules we are contemplating in this area, the channels immediately adjacent to the 75-megacycle airplane marker beacons will not be used for retransmission in a manner which would permit the retransmitting of the 75 megacycle marker beacon signals on a frequency used by aircraft for navigational purposes.

One of the things that has worried the Commission at this point is that some of these boosters operate on those channels adjacent to the marker beacons and may receive it and retransmit it and give the airplane a false position.

Our rules are designed to prevent anything of that sort and, also, as far as possible, to prevent interference of any kind.

Mr. Moss. Is it not fairly easily established as to the effect these stations would have? We are not talking now of a prospective operation. We are actually discussing the legalizing, or a means of legalizing, an existing operation.

Mr. FORD. These operations would have to be modified and there would have to be a period of time for their modification.

Mr. Moss. But the situation pending modification would be no different from the situation existing today?

Mr. FORD. That is correct.

Mr. MOSS. Are we having interference of a serious nature?

Mr. TURNER. Mr. Chairman, my name is George Turner. I am Chief of the Field Engineering and Monitoring Bureau.

Our interference cases total approximately 10 percent of this total of 460 booster stations that Chairman Ford has reported on. Of these 10 percent interference cases, the majority of those are cochannel interference, that is where interference is caused to other TV receivers on the frequency on which the booster is operating. There have only been two cases in the history of booster operations that have to do with interference to aircraft operations. These two are related to the last answer that Chairman Ford gave with reference to boosters reported to have retransmitted the omnidirectional aids to aerial navigation signals by picking up that particular signal and retransmitting it as a result of malfunctioning of their equipment. The equipment itself was not properly tuned.

As the chairman has indicated, the proposed rules will not permit operation on either side of this particular operation such that the 75-megacycle beacon signal will be retransmitted and received by aircraft on their navigational frequency. The purpose of that is, as he has indicated, to prevent that type of interference.

Mr. MOSS. Is it possible to state flatly that you can operate any facility in a manner which would cause no interference at any time?

Mr. FORD. I think that is a technical question and I would like the chief engineer to answer that.

Mr. ALLEN. As a general rule, sir, the answer is "No, you cannot."

Mr. MOSS. That is all I want to know.

Mr. ALLEN. You cannot guarantee before you set up the facility and test it that it will not cause interference.

Our rules are written so as to have proper operation and to minimize as far as possible the probability of interference, and then the few cases of interference which occur, if any, after the facility is instituted, are relatively simple to correct usually under those situations. But I know of no way to guarantee ahead of time.

Mr. MOSS. Then it would be impossible by rules to precisely spell out the operation so as to prevent interference?

Mr. ALLEN. I think it would certainly be impractical because the rules would be so critical and tight that you might not be able to get a facility which could be employed.

The CHAIRMAN. But after it is set up and tested, then you can develop reasonable assurance?

Mr. ALLEN. That is correct, sir.

The CHAIRMAN. Do you not require adequate testing?

Mr. ALLEN. No, sir. Even in the case of broadcast facilities, a complete test is expensive, and for a small facility of this nature, the kinds of tests which could be made would be rather small, and to base a complete guarantee on those might not be practical in many cases.

As Commissioner Ford has stated, we are designing our rules so as to minimize the obvious cases where we might get into trouble, and we will keep the power down to minimize interference and other specifications to minimize it, and after installation if there are any interference cases reported, we will take steps to correct them.

The CHAIRMAN. I have had called to my attention several instances from the agencies downtown of reports alleging interference, and I think the Commission is going to have to watch that very, very carefully.

Mr. FORD. In the course of our rulemaking this area of translating the channels that can be used will be watched very closely to minimize to the greatest extent scientifically possible any possibility of interference with the 75 megacycle marker beacon.

The CHAIRMAN. What is your "public notice B," issued May 25 regarding TV boosters being authorized for UHF stations?

Mr. FORD. That is a rulemaking proceeding in which the Commission has adopted rules which will permit a station itself to fill in dark areas within its normal service area with a UHF booster; that is, a UHF station can fill in its normal dark areas in its normal service area with a UHF booster.

The CHAIRMAN. And, of course, that expands the present procedure of encouraging the UHF operation?

Mr. FORD. That is right, sir, and it will be strictly a UHF operation and it will be on the same channel.

The CHAIRMAN. I think, probably, it might be advisable to have this included in the record.

Mr. FORD. We have a summary of that here. We do not have a copy of it, but we will furnish that for the record.

The CHAIRMAN. I have a copy. I suppose this [indicating] is a copy of it?

Mr. FORD. That is a public notice rather than the rule.

The CHAIRMAN. That will be received for the record.

(The matter referred to follows:)

PUBLIC NOTICE B—89172

FEDERAL COMMUNICATIONS COMMISSION,
Washington, D.C., May 25, 1960.

BROADCAST ACTION

REPORT NO. 3456

The Commission en banc, by Commissioners Ford (Chairman), Hyde, Lee, Craven, and Cross, took the following action on May 25:

TV BOOSTERS AUTHORIZED FOR UHF STATIONS

By Report and Order, the Commission adopted rules, effective July 5, to provide for the use of TV boosters by UHF television broadcast stations (Docket 11331). A booster merely amplifies and retransmits the signals of the parent station on the same channel. The new rules are substantially the same as those proposed June 27, 1957.

The main provisions are:

Licensing TV boosters to the licensees of UHF TV stations only.

They may be used to fill in "shadows" within a parent station's potential Grade A service area but not to extend that area. The potential Grade A contour of a UHF TV station extends out to 68 miles.

The maximum effective radiated power permitted boosters is 5 kilowatts.

The booster transmitter must be located within the Grade A contour of the parent station and is not permitted to place a signal in excess of 5 millivolts (Grade A service) at any place more than 68 miles from the parent TV station.

It must be possible to turn the booster off and on by transmitting a cue signal over the parent station.

Boosters will not be required to transmit individual call signals.

Use of type-approved equipment is not required but the equipment used must be designed and installed by qualified electronic engineers.

Booster licensees will be required to satisfy all complaints of interference to direct reception of the parent station and may not cause more interference to other TV stations than would occur if they were operating at the site of its transmitter with the maximum power and antenna height permitted under the TV rules.

Boosters may not be used to extend the service range of a TV station beyond that which the station could obtain with maximum power and antenna height at the site of its main transmitter.

These rules are intended to permit a UHF station to provide reasonably uniform coverage over its normal service area, and under severe terrain conditions, without resorting to extremely high powers. With boosters, a reasonable power can be used at the main transmitter of the parent station to serve the principal city and surrounding area and the booster used to pick up, amplify or boost the power, and retransmit the signals into places within the normal service range of the parent station previously suffering from inadequate signal strength because of intervening hills, etc.

A new FCC Form 343 has been adopted which can be used in applying for a construction permit for a UHF booster station as soon as it is available.

(B—FCC 60–615—88010)

BEFORE THE FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D.C.

DOCKET NO. 11331

In the Matter of Amendment of the Commission's Rules and Regulations Governing Television Broadcast Stations to Permit the Operation of Co-channel Amplifying Transmitters in Conjunction with the Main Transmitter

REPORT AND ORDER

By the Commission: Commissioner Bartley absent.

1. The Commission has before it for consideration its Memorandum Opinion and Notice of Further Proposed Rule Making (FCC 57–700), issued in this proceeding on July 2, 1957, proposing the authorization of television broadcast booster stations for use in conjunction with UHF television broadcast stations.

2. This proceeding was instituted on March 31, 1955, by a Notice of Proposed Rule Making (FCC 55–404) designed to elicit information on the desirability and feasibility of licensing UHF television co-channel amplifying transmitters, generally referred to as TV boosters. The Notice contemplated that such devices would be used by the licensees of UHF television broadcast stations to receive, amplify and retransmit the signals of the TV broadcast station on the original channel in order to "boost" the signal in areas of sub-normal signal intensity. After reviewing the comments directed to this phase of the proceeding, the Commission, on June 27, 1957, adopted a Memorandum Opinion and Notice of Further Proposed Rule Making proposing specific rules to govern UHF television boosters.

3. There was no opposition to the general proposal. Some of the comments merely endorsed the proposal without commenting on the specific rules; others suggested certain modifications; and a few requested that provision be made for VHF boosters.

4. Governor McNichols of Colorado filed comments on behalf of the Governors of several western states urging that provision be made for licensing the numerous low-power television boosters and translators operating in the VHF television band without Commission authorization.[1]

5. Two other parties filed comments supporting the subject proposal but requesting that it be expanded to include VHF boosters and translators. Television Montana, Inc. (KXLF–TV, Channel 4, Butte, Montana) proposed the licensing of VHF boosters with power up to 100 watts not only to the licensee of the primary TV station but to other "qualified applicants." [2] The Washington

[1] In connection with that pleading, the following parties filed comments endorsing the Governor's comments: Congressman Don Magnuson (Washington), Congressman Emanuel Celler (New York), Congresswoman Gracie Pfost (Idaho), and Governor Charles H. Russell of Nevada. In addition, the following parties referred to or forwarded copies of the pleading filed by the Governor of Colorado and requested that they be kept advised of developments: Senator Carl Hayden (Arizona), Senator Warren G. Magnuson (Washington) and Congressman James Roosevelt (California).

[2] To the extent that they may be pertinent, the comments of Television Montana, Inc., will be considered in Docket No. 12116.

State TV Reflector Association endorsed the subject proposal but requested that the proceeding be expanded to include provision for licensing devices such as those now being operated by its members.[3]

6. The Commission by a Memorandum Opinion and Order of July 29, 1957, initiated a separate proceeding (Docket No. 12116) concerning low power TV repeater stations. In the judgment of the Commission, the considerations involved in that proceeding are not sufficiently related to the matters considered in the subject proceeding to be included herein. Since none of the parties commenting with respect to the above problem objected to the subject proposal for UHF, their comments need not be considered further in this UHF booster proceeding.

7. The following parties generally supported the proposal but did not comment with respect to specific rules: Basin TV Company (KBAS–TV, Channel 43, Ephrata, Washington), WATR, Inc. (WATR–TV, Channel 53, Waterbury, Connecticut), Prairie Television Company (WTVP, Channel 17, Decatur, Illinois), Great Lakes Television Company (WSEE, Channel 35, Erie, Pennsylvania), KCOR, Inc. (KCOR–TV, Channel 41, San Antonio, Texas), Sir Walter Television Company (WNAO–TV, Channel 28, Raleigh, North Carolina), WBRE–TV, Inc. (WBRE–TV, Channel 28, Wilkes-Barre, Pennsylvania), Committee for Competitive Television and American Broadcasting Company.

8. Six parties submitted comments which support the proposal generally but suggest certain modifications. These are discussed in the following paragraphs.

9. Adler Electronics, Inc., which is engaged in the production of UHF transmitting apparatus, has operated an experimental UHF booster in conjunction with WATR–TV (Channel 53, Waterbury, Connecticut) since July 1955. Adler endorses the general proposal and subscribes to the comments of Electronics Industries Association (formerly RETMA). Adler suggests that the required suppression of emissions more than 3 mc above or below the assigned TV channel be reduced from 60 decibels to 40 decibels below the peak visual carrier power, with additional suppression added in individual cases if objectionable interference occurs. Adler contends that the proposed 60 decibels of suppression would add considerably to the cost of basic equipment and would be unnecessary at the majority of the actual installations.

10. Columbia Broadcasting System, Inc., supports the proposal generally but recommends the following modifications:

(a) CBS suggests that the rules expressly state that there is no numerical limit on the number of boosters used by a licensee to fill in shadows in its normal service area.

(b) CBS urges that the rules should clearly show that there is no fixed minimum separation required between boosters or between a booster and other TV broadcast stations since potential interference is controlled to a great extent by limitations on power and field intensity as well as the provision limiting boosters to the Grade A service area of the parent station.

(c) CBS submits that the provision in Section 4.803(a) suggesting adjustment of time differential as a corrective measure for interference is impractical and should be deleted.

(d) CBS urges that the reference to "principal community" in Sections 4.835 and 4.837 should be deleted since the principal community might be difficult to determine and the provisions could impose an artificial and unnecessary barrier to providing service to two adjacent communities from a single booster. CBS suggests that "center of the area of highest concentration of population" could be used instead.

(e) CBS believes that the proposed requirement of Section 4.803(c) that the booster licensee "assume full responsibility for resolving all valid complaints of interference" may be impossible to meet and recommends that the responsibility of the booster licensee be limited to "reducing the interference to a minimum."

(f) CBS suggests that the provision of Section 4.883(b), which states that the Commission may request the operator on duty at the TV broadcast station to interrupt the transmissions of the booster for short intervals to aid in identification of a particular booster, should be modified to limit such requests to times when the booster is not transmitting programs since such interruptions may prove annoying to viewers.

[3] Their comments generally paralleled those of Governor McNichols and will be considered in Docket No. 12116 concerning low power television repeater stations.

11. Radio-Electronics-Television Manufacturers Association (RETMA), now Electronics Industries Association (EIA), supports the proposal generally but comments specifically with respect to the following:

(a) EIA now supports the proposal to restrict the use of boosters to areas within the Grade A contour of the primary TV station.

(b) EIA agrees that a reduction in out-of-band emissions should be specified but recommends that the proposed requirement be reduced from 60 decibels to 40 decibels below the visual carrier power, with additional attenuation required in individual cases of interference.

(c) EIA opposes any maximum limit on power since such a restriction may raise problems when a booster operates close to the primary station. EIA is of the opinion that the amount of power which may be employed will be automatically limited by design considerations, which restrict the possible gain in the amplifier because of "feed-back" problems. The output power would thus be controlled by the strength of the signal available from the primary station and would decrease with distance from the primary station.

(d) EIA recommends against imposing a maximum field intensity over the area to be served since this will be governed by the automatic limit on power output. In this connection, EIA believes the political boundaries of a "principal community" would be difficult to define.

(e) EIA supports the proposal which would limit the field strength to not more than 5 millivolts per meter at 68 miles from the primary station.

(f) EIA suggests that the term "maximum overall gain" in Section 4.850(d) be changed to "maximum utilized gain" to embrace circumstances where the booster amplifier might be operated below its maximum capabilities.

12. Joint Council on Educational Television (JCET) supports the proposal generally but expresses concern that boosters operating in locations at less than the minimum separations required by regular TV broadcast stations may cause interference under certain conditions. JCET suggests that an applicant proposing a booster at less than the normally required separation from any TV broadcast station be required to submit a special showing with regard to potential interference.

13. Indiana Broadcasting Corporation supports the proposal generally but believes that the requirement of Section 4.834(a)(3), that a manned control point be established in the areas served by the booster, would add substantially to the cost of operation and might discourage the use of boosters. Indiana Broadcasting suggests that the rules also permit remote control of boosters from the primary station if automatic devices are incorporated which will transmit a warning signal to the control point by wire lines if the booster equipment malfunctions.

14. National Broadcasting Company, Inc., supports the proposal generally and stated that it was considering the use of boosters in conjunction with its UHF stations at Buffalo, New York, and New Britain, Connecticut.[4] NBC suggests the following modifications:

(a) Delete the provision in Section 4.832(b)(1) that would require a showing that 50 percent of the locations in the area proposed to be served by the booster receive signals of less than 5 millivolts per meter from the primary station. NBC contends that this requirement would be burdensome, that making such a determination with respect to the "principal community" would not necessarily indicate that the area adjacent to the "principal community" and served by the contemplated booster had less than 5 millivolts at more than 50 percent of the locations, and that the purpose of the rule is obscure. NBC urges that deletion of this requirement would not lead to abuses since self-interest would deter broadcasters from placing boosters in areas where they are not actually needed.

(b) Delete the restriction on maximum power in Section 4.835(c) and let this be governed by the strength of the signal available from the primary station at the booster location. NBC contends that the provisions of Section 4.803 (c) and (d) afford adequate protection to other services from interference by the booster and that limiting the 5-millivolt-per-meter field to within the Grade A contour of the primary station guards against extension of the service area of a TV station.

(c) NBC states that the reference in Section 4.835(a) to political boundary of the principal community may be difficult to determine and that elimination of the limit on maximum power and maximum field intensity would remove any need for such a reference point.

[4] NBC has since terminated the UHF operation at Buffalo and disposed of its UHF station at New Britain.

DISCUSSION

15. The Commission agrees with CBS that the sentence in Section 4.803(a) concerning adjustment of the time differential of the modulation envelope should be deleted.

16. On the basis of the comments of NBC with regard to Section 4.892(b)(1), we have reconsidered the proposed requirement that booster applicants indicate the quality and extent of direct reception in the area proposed to be served, and agree that the cost and complexity of the necessary field strength survey outweighs the importance of the data so obtained. This requirement has therefore been deleted.

17. We do not agree with the suggestion by CBS regarding Section 4.803(c)—that the licensee of a booster should assume responsibility for interference only to the extent of "reducing it to a minimum." On-channel amplifiers used for "boosting" and re-radiating TV signals inherently are a source of potential interference. The subject rules stress this fact and there will undoubtedly be places where boosters cannot be operated because of insoluble interference problems. Where a TV booster is authorized, the burden of resolving interference must, in our judgment, rest with the licensee. In the experimental UHF booster operations that have been conducted to date, it has been found that when a UHF booster is properly located, it is possible to eliminate interference through the use of readily available engineering procedures. If the circumstances are such that the booster cannot be properly located, the operation is not feasible. The Commission is placing the burden of eliminating interference on the licensee to prevent the use of boosters to provide service to one group of people at the expense of service to another group, even though such use might result in a net gain in audience.

18. We have carefully considered the comments of Indiana Broadcasting Corporation concerning the establishment of a monitoring point in the area served by the booster and conclude that the additional protection against interference caused by improper operation, which might be afforded by the establishment of a local monitoring point is not sufficient to warrant the cost of establishing such a monitoring point. The most important feature of the originally proposed local monitoring point was the provision for manual on and off control of the booster, particularly in the event of failure of the remote on and off control. This problem has been met by adding a requirement to the remote control provision which makes necessary the periodic transmission of a "cue" signal by the primary station. Failure of the primary station to transmit the cue signal or failure of the booster control circuit to receive the cue signal will automatically place the transmitter in an inoperative condition. The cue signal need not be transmitted more frequently than intervals of one hour.

19. CBS, NBC, and EIA commented extensively with rsepect to Section 4.835. It is their consensus that using the political boundaries of a "principal community" as a reference point in connection with the maximum limit on field intensity radiated by a booster is impractical and might introduce artificial restrictions on the use of boosters. All of the parties subscribed to the provisions of paragraph (b)(4) of this section, which would prohibit the radiation of a field having an intensity in excess of 5 millivolts per meter beyond the theoretical Grade A contour (68 miles) of the primary station; and EIA and NBC submitted that the further restriction limiting the radiated field to 5 millivolts per meter over the "principal community" is unnecessary. CBS suggested as a reference point "the center of the area of highest concentration of population" in the area proposed to be served by the booster in applying the proposed restriction. NBC and EIA recommended that subparagraph (c) be deleted and that no maximum power limit be specified. Both expressed the view that there is an automatic limit on power imposed by the practical limits on the amplification of the signals received from the primary station which can be accomplished. They maintain that since the strength of the direct signals diminish with the distance from the primary station, less power can be employed at the booster as the distance from the primary station increases, an no specified limit is necessary.

20. We adhere to our belief that a ceiling on the maximum power which may be used by a television broadcast booster station, should be included in these rules. However, we have reconsidered the original proposal which would have determined this "ceiling" on the basis of a predicted field strength over a "principal community" and conclude that this would add an unnecessary complexity to the rules. Accordingly, the rules adopted herein limit the power in only two regards: (1) the maximum effective radiated power which will be authorized is 5 kilowatts, and (2) no booster installation will be authorized which would produce

a predicted field of more than 5 millivolts per meter beyond the normal Grade A (68 mile) contour of the primary station.[5] The problem of interference to other television stations, raised by JCET, is met by the provisions of Section 4.804 which require the TV booster licensee to correct any condition of interference to other TV stations which occurs as the result of a field strength from the booster in excess of that which could be produced *at the place where the interference occurs,* by the primary station if it were operating at its authorized location with an effective radiated power of 5,000 kilowatts from an antenna 2,000 feet above average terrain.

21. Deletion of the rules which would have required determination of field strength over a "principal community" eliminates the need for establishing such a reference point. For record purposes a booster will be identified with the largest community in the area which it serves, i.e., the license, in addition to the geographic coordinates, will specify such community.

22. With regard to CBS's suggestion that the rules clearly show that no numerical limit is placed on the number of TV boosters that may be used by a single licensee, we have added language to Section 4.832(c) which makes this clear.

23. On the basis of the comments of Adler and EIA, the Commission has reconsidered the proposal in Section 4.836(c) which would require that spurious emissions, including any emissions more than 3 megacycles above or below the upper and lower limits of the assigned channel, be suppressed at least 60 decibels below the peak visual carrier amplitude. Adler and EIA have suggested that a suppression of only 40 decibels would be adequate. In view of the statements that achieving the additional 20 decibels of suppression above 40 decibels will add substantially to the cost of equipment and our experience with UHF translators which have been operating for over a year with less than 60 decibels suppression, we are incorporating the suggested reduction in the suppression requirement in Sections 4.836(c) and 4.850. However, Section 4.836(c) will continue to provide that additional suppression may be required in individual cases where interference is caused by out-of-band emissions.

24. JCET urges adoption of minimum geographic separations between boosters, and between a booster and a regular TV broadcast station. CBS on the other hand urges that the rules clearly show that no minimum spacings are required. JCET expresses concern at the possibility of interference if no separation requirement is specified. Application of the separation requirements of Part 3 of the rules to boosters would make it virtually impossible to find satisfactory locations in regions where boosters are needed. UHF operation is concentrated in areas of high population density. In such areas there is often little flexibility in the allocation of UHF channels since many of the allocations have been made at or near minimum spacings. Therefore, boosters proposed to serve communities beyond the immediate area around the TV station would, in many cases, not meet minimum spacings to other UHF stations or assignments. By confining boosters within the theoretical Grade A contour, limiting the power to 5 kilowatts and requiring correction of interference which occurs as the result of fields in excess of those which could be produced by the primary station, we accomplish substantially the same degree of protection to other cochannel TV stations as is provided by the minimum separations. Interference can be controlled in most cases by the judicious choice of booster sites and the intelligent use of the directive properties of transmitting antennas and individual TV receiving antennas in the areas served by the booster. In circumstances where such measures are inapplicable, other means, such as translators or satellite operation may be employed to provide the needed service.

25. Sections 4.803, 4.804 and 4.832(b) are intended to insure that the use of a TV booster does not deprive people of otherwise satisfactory service. These rules are designed (1) to guard against the destruction of the service of a TV station other than the primary station whether or not a substitute service is provided by the TV booster and (2) to prevent the degradation of service received directly from the primary station unless the substitute service provided by the booster is of equivalent quality. However, in neither of the above cases is it intended to provide protection over and above that which is provided under the rules governing TV broadcast stations. Therefore, the responsibility of the licensee of the TV booster with respect to interference, applies only in those cases where the interference results from the existence of signals from the booster having a strength in excess of that which would be produced at the same location, by the

[5] The proposal in Docket 13340 if adopted as proposed would eliminate the defintion of Grade A service and revise the Field Strength Charts used for estimating service ranges. If these changes are adopted the rules relating to TV boosters will be appropriately amended to be consistent with the changes.

primary station operating with the maximum power and antenna height permitted under the TV rules. The provisions of Section 4.804 place a continuing requirement on the licensee of the TV booster and the responsibility for resolving valid complaints of interference applies not only to interference to stations existing at the time the TV booster is placed in operation but also to interference which may develop as the result of new TV stations coming into operation. Although the rules are concerned only with actual interference, applicants should carefully consider potential interference and the hazard of interrupted operation posed thereby.

26. EIA suggested that Section 4.850(d) refer to "maximum utilized gain" rather than "maximum overall gain." The term "overall gain" as used in this section simply means the net gain of the booster amplifier between the input and output terminals, and refers to the actual utilized gain, not the maximum capabilities of the amplifier. Therefore, no change in the wording of this rule appears necessary.

27. We have found it unnecessary to require these boosters to transmit individual call signs. They are licensed only to the licensee of the TV broadcast station they are retransmitting and the transmission of the TV station call sign provides rapid identification. If it becomes necessary to obtain emergency suspension of operation due to interference, these devices can be turned off from the TV station by the transmission of a coded signal. The proposed rule contained a provision whereby the Commission could request that the transmissions of a booster be interrupted for short intervals of time to facilitate identification. CBS suggested that such interruptions be limited to periods when no program is being transmitted. The importance of rapid identification outweighs the slight annoyance of inconvenience of program interruption. If a TV station licensee operates more than one booster selective coding may be employed to control each booster separately. This would avoid having to turn off all the boosters when interruption of the signal of only one is needed to identify improper operation or eliminate interference. It should not be necessary to interrupt the transmissions of the primary TV station for this purpose.

28. The present Television Agreements with Canada and Mexico do not cover the matter of "booster" amplifiers. Under rules such as those adopted herein, boosters may not be used to *extend* the service range of a TV station beyond that which it could obtain with the maximum power and antenna height at the site of its main transmitter. Consequently, such operation may be considered to come within the purview of the Agreements. However, in the interest of good international relations, the Commission will not act unilaterally in this matter and will initiate action looking toward securing concurrence of the governments of Canada and Mexico in the matter of licensing these devices in the vicinity of the borders. Pending the completion of such an arrangement, applications proposing UHF boosters in conjunction with assignments listed in the Canadian or Mexican TV Agreements and located more than 15 miles from the site of the main transmitter in the direction of the border of Canada or Mexico, will be referred to the appropriate Government on a case-by-case basis.

29. In order to implement the rules, we are adopting FCC Form 343 to be used in applying for a Construction Permit for a Television Broadcast Booster Station. This form will be available shortly.

30. Authority for the adoption of the rules herein is contained in Sections 4(i), 301, 303 (a), (b), (c), (d), (e), (f), (g), (j), and (r), and 307(b) of the Communications Act of 1934, as amended.

31. Accordingly, IT IS ORDERED, That effective July 5, 1960, the Commission's Rules and Regulations ARE AMENDED as set forth in the attached Appendix.

FEDERAL COMMUNICATIONS COMMISSION
BEN F. WAPLE, *Acting Secretary.*

Attachment.
Adopted: May 25, 1960.
Released: June 3, 1960.

NOTE.—Rules changes herein will be covered by Transmittal Sheets I–2 and III–7.

APPENDIX

1. Section 1.322(a) is amended by adding the following new subparagraph:

§ 1.322 Application forms for authority to construct a new station or make changes in an existing station.

(a) * * *

(6) FCC Form 343 "Application for Authority to Construct or Make Changes in a Television Broadcast Booster Station."

2. Section 1.325(a) is amended by adding the following new subparagraph:

§ 1.325 Application for license to cover construction permit.

(a) * * *

(6) FCC Form 344 "Application for Television Broadcast Booster Station License."

3. Section 1.328(d) is amended by adding the following new subparagraph:

§ 1.328 Application for renewal of license.

(d) * * *

(6) FCC Form 345 "Application for Renewal of Television Broadcast Booster Station License."

4. Section 4.15 is amended by adding the following new paragraph:

§ 4.15 License period.

* * * * * * *

(c) The license of a television broadcast booster station will be issued for a period running concurrently with the license of the television broadcast station (Primary Station) with which it is used.

5. Add a new Subpart H to read as follows:

SUBPART H—TELEVISION BOOSTER STATIONS

DEFINITIONS AND ALLOCATION OF FREQUENCIES

§ 4.801 *Definitions.* (a) Television broadcast booster station: A station in the broadcasting service operated for the sole purpose of retransmitting the signals of a television broadcast station by amplifying and reradiating such signals which have been received directly through space, without significantly altering any characteristic of the incoming signal other than its amplitude.

(b) Primary station: The television broadcasting station radiating the signals which are retransmitted by a television broadcast booster station.

§ 4.802 *Frequency assignment.* A television broadcast booster station will be assigned the channel and carrier frequencies assigned to its primary station.

§ 4.803 *Interference to primary station.* (a) An application for a new television broadcast booster station or for a change in the facilities of an existing station shall be accompanied by a detailed showing and discussion of the areas of potential interference. The showing shall include:

(1) A suitable map of the area in which the booster is proposed to be operated showing the location of the booster, the direction from the booster toward the primary station and the distance to the primary station, the radiation pattern of the booster, and the areas in which an unfavorable ratio is likely to exist between the direct signal and the boosted signal. If certain terrain features are expected to confine or otherwise minimize interference, these shall be clearly marked.

(2) A statement as to the approximate number of existing receiving installations which may be adversely affected by the proposed booster operation and the measures which will be employed by the applicant to restore reception, including an estimate of the cost of such restoration and how this cost will be borne.

(b) It shall be the responsibility of the licensee of a television broadcast booster station to correct any condition of interference resulting from the operation of the booster to a receiving installation existing at the time the booster is placed in operation, which causes loss or degradation of an otherwise acceptable service from the primary station if requested to do so by the owner of the affected TV receiver. The license of the booster is expected to provide such advice, technical assistance, and materials as may be required to restore the lost service either by rejecting the booster signals to the extent necessary to restore the direct service to its original condition or by utilizing the booster service to replace the lost direct service. Refusal of the complainant to permit the application of remedies which are demonstrably capable of restoring the lost service will relieve the booster licensee of further responsibility for the correction of interference to that complainant.

§ 4.804 *Interference to other stations and services.* (a) The licensee of a television broadcast booster station is responsible for the correction of interference to reception of other television broadcast stations or stations in other services, caused by:

(1) Radiation of radio frequency energy outside the channel assigned to the booster.

(2) Radiation of spurious emissions, i.e., emissions not contained in the visual and sound signal received from the primary TV station, within the channel assigned to the booster.

(3) Authorized emissions which produce a field strength at the affected receiver in excess of the theoretical field which would be produced by the primary TV station at that same location if the primary TV station were operating with 5 megawatts effective radiated power from an antenna 2,000 feet above average terrain, over a path of normal terrain. The theoretical value of field strength which could be produced by the primary station under the conditions stipulated, shall be determined by the use of the F(50, 50) field strength charts for Channels 14–83, contained in § 3.699 of this chapter.

(b) Upon notification by the Commission that such interference has been reported, operation of the booster shall be suspended and shall not be resumed until the interference has been eliminated or it can be demonstrated that the interference is not due to any of the above causes: *Provided, however,* That short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures. In each case where suspension of operation is required, the licensee of the TV booster shall within 10 days after operation is resumed, submit a full report to the Commission of the cause and nature of the interference and the remedial steps taken to eliminate the interference.

(c) An application for a new television broadcast booster station shall contain a suitable map showing the locations of the proposed booster and all other TV boosters and television broadcast stations within 75 miles of the proposed booster site and operating on the same channel as the proposed booster or on any related channel shown in the columns opposite the proposed booster channel in Table IV of Section 3.698 of this chapter.

ADMINISTRATIVE PROCEDURE

§ 4.811 Administrative procedure. See Sectons 4.11 to 4.16 inclusive.

LICENSING POLICIES

§ 4.831 *Purpose and permissible service.* Television broadcast booster stations provide a means whereby the licensees of television broadcast stations operating in the UHF television broadcast band may provide service to areas of low signal intensity in any region which would be encompassed by the theoretical Grade A contour if the station were assumed to be operating with an effective radiated power of 5,000 kilowatts from an antenna 2,000 feet above average terrain over a transmission path of normal terrain. For the purpose of this section, the distance from a UHF television broadcast station to its theoretical Grade A contour under the above assumptions is 68 miles.

(a) A television broadcast booster station is authorized to retransmit only the signals of its primary station. It shall not retransmit the signals of any other station nor make independent transmissions: *Provided, however,* That locally generated signals may be used to excite the booster apparatus for the purpose of conducting tests and measurements essential to the proper installation and maintenance of the apparatus.

(b) A television broadcast booster station will not be authorized to operate at any location more than 68 miles from its primary station and shall not be operated to produce a field strength greater than 5 millivolts per meter at a height of 30 feet above ground at a distance of more than 68 miles from its primary station.

(c) The transmissions of a television broadcast booster station shall be intended for direct reception by the general public. Such stations may not be used to establish a point-to-point television relay system.

§ 4.832 *Eligibility and licensing requirements.* (a) A license for a television broadcast booster station will be issued only to the licensee of a television broadcast station operating in the UHF television broadcast band, and solely for the purpose of retransmitting the signals of such television broadcast station.

(b) An application for a television broadcast booster station shall contain an adequate showing that:

(1) The proposed booster can be installed and operated so as to provide satisfactory reception without causing harmful interference to existing service, by the application of acceptable techniques.

(2) That a signal of sufficient magnitude is available from the primary station at the site of the proposed booster.

(c) No numerical limit is placed upon the number of boosters which may be licensed to a single licensee. A separate application is required for each booster transmitter. Television broadcast booster stations will not be counted as TV stations in applying the multiple ownership provisions of § 3.636 of this chapter.

§ 4.833 (Reserved)

§ 4.834 *Remote control operation.* (a) A television broadcast booster station may be operated by remote control provided that such operation is conducted in accordance with the conditions set forth in subparagraphs (1) through (4) of this paragraph.

(1) The transmitter shall be equipped with automatic devices, which, in the absence of a signal from the primary station, will render the transmitter incapable of emitting radio frequency energy.

(2) The transmitter shall be further equipped with a device, which may be actuated by a coded signal or tone transmitted by the primary station, and which will permit turning the transmitter on and off at will from the primary station. The signal required to be transmitted by the primary station for this purpose shall be of such nature or of duration so short that it will not appreciably degrade normal reception of the primary station.

(3) As a precaution against loss of control due to failure of the control circuit, the circuit shall be designed so as to require reception of a cue signal from the primary station at intervals of one hour or less and failure to receive the cue signal will automatically place the booster transmitter in an inoperative condition.

(4) The transmitter and its associated controls shall be so installed and protected as to be inaccessible to unauthorized persons.

(b) An application for a new television broadcast booster station or for a change in the facilities of an existing station which proposes remote control operation, shall be accompanied by a satisfactory showing as to the manner of compliance with the above conditions. Unless remote control is specifically authorized pursuant to the above requirements, the booster transmitter shall be under the direct supervision of a qualified operator in accordance with Section 4.866.

§ 4.835 *Power limitations.* (a) A television broadcast booster station will not be authorized to operate with power in excess of that required to provide an adequate signal over the area intended to be served by the booster. Due consideration should be given to the privisions of Section 4.804 which requires the licensee of a television broadcast booster station to correct any condition of interference which results from field strengths in excess of those which could be produced by the primary station at the place where interference occurs.

(b) In no event will a television broadcast booster station be authorized to operate with an effective radiated power of more than 5 kilowatts peak visual.

(c) In no event will a television broadcast booster station be authorized to operate at a location, and with an effective radiated power, and antenna height above average terrain, which would produce a predicted field strength of more than 5 millivolts per meter at any location more than 68 miles from the primary station. The predicted field strength of a television broadcast booster station shall be determined in accordance with the procedures set forth in Section 3.684 of this chapter. If a directive transmitting antenna is to be used to suppress radiation so as to comply with this requirement, the proposed directive pattern shall be supported with adequate engineering data.

(d) No minimum power is specified for television broadcast booster stations.

§ 4.836 *Emissions and bandwidth.* (a) The license of a television broadcast booster station authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3).

(b) Standard width television channels will be assigned and the emission of a television broadcast booster station shall be confined to the authorized channel in accordance with the Television Technical Standards contained in Part 3, Subpart E, of this chapter, except as provided in paragraph (c) of this section.

(c) Spurious emissions on frequencies more than 3 megacycles outside the assigned channel, other than radio frequency harmonics of the visual and aural carriers but including intermodulation products, signals other than those received from the primary station, and radio frequency energy generated within the booster apparatus, shall be attenuated no less than 40 decibels below the peak visual carrier amplitude. Radio frequency harmonics of the visual and aural carriers shall be attenuated no less than 60 decibels for transmitters operating with more than 1 kilowatt power output. For transmitters operating with power output of 1 kilowatt or less, the power of such radio frequency harmonics shall not exceed 1 milliwatt. Greater attenuation of all spurious emissions may be required if interference is caused to any radio service.

§ 4.837 *Antenna location.* (a) The transmitting antenna of a television broadcast booster station shall be located within the Grade A contour of the primary station, as defined in Section 4.831.

(b) An applicant for a new television broadcast booster station or for changes in an existing station shall endeavor to select a site which will provide a line-of-sight transmission path to the area intended to be served and at which there is a suitable signal available from the primary station. The transmitting antenna should be placed above growing vegetation lying in the direction of the area intended to be served to minimize the possibility of signal absorption by foliage.

(c) Consideration should be given to accessibility of the site at all seasons of the year and to the availability of facilities for the maintenance and operation of the television broadcast booster station.

(d) Consideration should be given to the existence of strong radio frequency fields from other transmitters at the booster site and possibility that such fields may result in the retransmission of signals originating on frequencies other than that of the primary station.

EQUIPMENT

§ 4.850 *Equipment and installation.* (a) An application for a new television broadcast booster station or for changes in the facilities of an existing station shall supply complete technical details of the apparatus to be employed and the overall installation. The functioning of such automatic features or other safeguards as may be incorporated to prevent improper operation shall be fully described. If the apparatus is to be remotely controlled, a detailed description of the control features shall be included.

(b) The overall characteristics of the complete installation shall be essentially linear so as to accomplish retransmission of the incoming signals of the primary station without significantly altering any electrical characteristics other than the overall amplitude. Intermodulation products which may be generated shall be adequately removed from the transmissions of the booster so as not to constitute a source of potential interference. Provision shall be made in the circuits employed, to prevent the amplifier being driven into a nonlinear condition over the full range of signal intensities within which the booster may be called upon to operate, or to cause it to cease radiating should nonlinear operation or oscillation of any stage occur.

(c) The isolation between the input and output circuits of the booster, including the receiving and transmitting antenna systems, shall be at least 20 decibels greater than the maximum overall gain of the booster amplifier.

(d) the overall response of the amplifier shall not vary by more than 2 decibels over the entire assigned channel: *Provided, however,* That the amplitude of the aural signal may be decreased by a suitable amount if necessary to minimize intermodulation effects or eliminate interference between the sound and picture signals. The apparatus shall be capable of complying with the requirements of § 4.836(c) with respect to spurious emissions.

(e) In general, the transmitter shall be mounted on racks and panels or in totally enclosed frames protected as required by Article 810 of the National Electrical Code.

(f) The installation of a television broadcast booster station shall be made only by, or under the direct supervision of, a qualified electronics engineer and any repairs or adjustments made during or subsequent to the installation, which could result in improper operation, shall be made by or under the direct supervision of such an engineer or an operator holding a valid first or second class radiotelephone operator's license issued by the Commission.

(g) In cases where the electrical characteristics of the transmitting and receiving antennas of a booster station are used to provide the required degree of isolation between the input and output circuits, the installation of such antennas shall be sufficiently rugged and protected as to withstand such hazards as may reasonably be expected to be encountered due to their exposure to the elements and the local environment.

(h) Prior to placing a television broadcast booster station in regular operation, the permittee shall perform sufficient measurements of the completed installation to insure compliance with this section. These measurements together with a detailed description of the methods used in obtaining the measurements shall be submitted with the application for license for the booster station.

(i) Type acceptance of television booster amplifiers may be granted upon request in accordance with the type acceptance procedure set forth in Part 2 of this chapter; provided that measurement data and descriptive information submitted shows that the amplifier is capable of meeting the technical requirements of this subpart. The following measurement data must be supplied:

(1) Radio frequency power output (visual peak power).

(2) Overall gain of the amplifier vs. frequency throughout the entire channel in which it is designed to operate.

(3) Spurious emissions appearing on frequencies outside the channel in which it is designed to operate, including radio frequency harmonics up to 2,000 megacycles.

§ 4.851 *Equipment changes.* (a) Formal application (FCC Form 343) is required for any of the following changes:

(1) Replacement of the transmitter as a whole, except replacement with an identical transmitter, or any modification which could result in a change in the electrical characteristics or overall performance of the booster installation.

(2) A change in the transmitting antenna system, including the direction of radiation, directive pattern or transmission line.

(3) An increase in the authorized overall height of the antenna above ground of more than 20 feet or which will result in an overall height above ground of more than 170 feet.

(4) A change in the control system.

(5) Any change in the location of the transmitter except a move within the same building or upon the same tower or pole, and any horizontal change in the antenna location of the transmitting antenna in excess of 500 feet.

(6) A change of frequency assignment.

(7) A change of authorized operating power.

(b) Other equipment changes not specifically referred to above may be made at the discretion of the licensee, provided that the Engineer in Charge of the radio district in which the television broadcast booster station is located and the Commission's Washington, D.C., office, are notified in writing upon completion of such changes, and provided, further, that the changes are appropriately reflected in the next application for renewal of license of the television broadcast booster station.

TECHNICAL OPERATION

§ 4.861 *Frequency tolerance.* The visual carrier frequency and the aural center frequency of the television signals transmitted by a television broadcast booster station shall be identical with those of the primary station.

§ 4.862 *Frequency monitors and measurements.* The licensee of a television broadcast booster is not required to provide means for measuring the operating frequencies of the booster transmitter.

§ 4.863 *Time of operation.* (a) A television broadcast booster station is not required to adhere to any regular schedule of operation. However, the licensee of a television booster station is expected to provide a dependable service to the extent that such is within its control and to avoid unwarranted interruptions to the service provided.

(b) If causes beyond the control of the licensee require that a television broadcast booster station remain inoperative for a period in excess of 10 days, the Engineer in Charge of the radio district in which the station is located shall be notified promptly in writing, describing the cause of failure and the steps taken to place the station in operation again, and shall be notified promptly when the operation is resumed.

(c) Failure of a television broadcast booster station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuance of operation and the license of the station will be automatically forfeited.

(d) A television broadcast booster station shall not be operated during periods when the primary station is not operating.

§ 4.864 *Station inspection.* The licensee of a television broadcast booster station shall make the station and the records required to be kept available for inspection upon request by representatives of the Commission.

§ 4.865 *Posting of station and operators licenses.* (a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation shall be posted at the place where the transmitter is located, so that all of the terms thereof are visible: *Provided, however,* That if the booster transmitter is operated by remote control and is located more than 20 miles from the primary station, the station license and other instruments of authorization shall be posted in the above-described manner at the transmitter of the primary station.

(b) The call letters and assigned channel of the primary station shall be displayed at the booster site on the structure supporting the transmitting antenna so as to be visible to a person standing on the ground at the booster transmitter site. The display shall be prepared so as to withstand normal weathering for a reasonable period of time and shall be maintained in a legible condition by the licensee.

(c) The original of each station operator license shall be posted at the place where he is on duty: *Provided, however,* That if the original license of a station operator is posted at another radio transmitting station in accordance with the rules governing that class of station and is there available for inspection by a representative of the Commission, a verification card (Form 758–F) is acceptable in lieu of the posting of such license: *Provided, further, however,* That if the operator in charge holds a restricted radiotelephone operator permit of the card form (as distinguished from the diploma form), he shall not post that permit but shall keep it in his personal possession.

§ 4.866 *Operator requirements.* (a) The actual operation of the transmitting apparatus at a television broadcast booster station shall be carried on only by a person holding a valid first or second class radio-telephone operators license: *Provided, however,* That where the booster transmitter is remotely controlled by the transmission of coded signals from the primary station, an unlicensed person may turn the power supplied to the booster by the power mains, on and off upon instructions from the operator on duty at the primary station.

(b) The licensed operator on duty and in charge of a television broadcast booster station may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of license which he holds and the rules and regulations governing such stations. However, such duties shall in no wise interfere with the operation of the television broadcast booster station.

§ 4.867 *Marking and lighting of antenna structures.* The marking and lighting of antenna structures employed at a television broadcast booster station, where required, will be specified in the authorization issued by the Commission. Part 17 of this chapter sets forth the conditions under which such marking and lighting will be required and the responsibility of the licensee with regard thereto.

§ 4.868 *Additional orders.* In case the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders, in each case as may be deemed necessary.

§ 4.869 *Copies of Rules.* The licensee of a television broadcast booster station shall have current copies of Part 3 and Part 4, and in cases where antenna marking is required, Part 17 of this chapter, available for use by the operator in charge, and is expected to be familiar with those rules relating to the operation of a television broadcast booster station. Copies of the Commission's rules may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at nominal cost.

OPERATION

§ 4.881 *Station Records.* (a) The licensee of a television broadcast booster station shall maintain an operating log showing the following:

(1) Hours of operation.

(2) A record of all repairs, adjustments, maintenance, tests, and equipment changes, showing the date of such events, the name and qualifications of the person performing the operation, and a brief description of the matter logged.

(b) Where an antenna structure is required to be illuminated, see Section 17.38, *Recording of tower light inspections in the station record,* of this chapter.

(c) The operating log shall be made available upon request to any authorized representative of the Commission.

(d) Station records shall be retained for a period of two years.

§ 4.882 (Reserved).

§ 4.883 *Station identification.* (a) Television broadcast booster stations will not be assigned individual call signs. Station identification will be accomplished by the retransmission of the call sign of the primary station.

(b) The Commission may request the operator on duty at the primary station to interrupt the transmissions of the booster station for short intervals of time in order to facilitate identification of a particular booster.

§ 4.884 *Rebroadcasts.* (a) The term "rebroadcast" means the reception by radio of the programs or other signals of a radio or television station and the simultaneous or subsequent retransmission of such programs or signals for direct reception by the general public.

(b) A television broadcast booster station is authorized to rebroadcast only the signals of the primary station with which it is associated. In cases where the booster is located at a site where the signals of other television broadcast stations or other classes of stations may be received, care shall be exercised in the installation to insure that such other signals are not retransmitted: *Provided,*

however, That occasional inadvertent retransmission of the signals of other co-channel TV stations caused by abnormal propagation conditions, will not be considered to be non-compliance.

9. Add the following new entries to the Table of Contents:

SUBPART H—TELEVISION BROADCAST BOOSTER STATIONS

DEFINITIONS AND ALLOCATION OF FREQUENCIES

Sec.
4.801—Definitions.
4.802—Frequency assignment.
4.803—Interference to primary station.
4.804—Interference to other stations and services.
Administrative Procedure
4.811—Administrative procedure.
Licensing Policies
4.831—Purpose and permissible service.
4.832—Eligibility and licensing requirements.
4.833—(Reserved).
4.834—Remote control operation.
4.835—Power limitations.
4.836—Emissions and bandwidth.
4.837—Antenna location.
Equipment
4.850—Equipment and installation.
4.851—Equipment changes.
Technical Operation
4.861—Frequency tolerance.
4.862—Frequency monitors and measurements.
4.863—Time of operation.
4.864—Station inspection.
4.865—Posting of station and operator's licenses.
4.866—Operator requirements.
4.867—Marking and lighting of antenna structures.
4.868—Additional orders.
4.869—Copies of rules.
Operation
4.881—Station records.
4.882—(Reserved).
4.883—Station identification.
4.884—Rebroadcasts.

(B—FCC 59–1211—81034)

BEFORE THE FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D.C.

DOCKET NO. 12116

In the Matter of Amendment of Part 4 of the Commission Rules and Regulations to permit the operation of Low Power Television Broadcast Repeater Stations

NOTICE OF FURTHER PROPOSED RULE MAKING

1. In its Report and Order (FCC 58–1255) issued in this proceeding December 30, 1958, the Commission reaffirmed its concern with the problem of inadequate television reception in small, remote communities but concluded that the limited number of channels available in the VHF television band and the hazard of harmful interference to the reception of television broadcast stations as well as other radio services on adjacent frequencies, made it desirable to limit TV repeater stations to the UHF band.

2. Reconsideration of its decision of December 30, 1958 was requested in pleadings filed on January 26, 1959 by Western Slope Broadcasting Company, Inc., and on February 4, 1959, by the licensees of sixteen television stations in California, Colorado, Idaho, Montana, South Dakota, Texas, Utah, and Wyoming.[1] In the interim the Commission has engaged in a continuing restudy of the problems associated with the licensing of low power repeater stations in the VHF band and has endeavored to re-evaluate those problems in the light of the foreseeable advantages and disadvantages which would flow from the authorization of VHF repeater operations under a number of alternative sets of technical and operating conditions. The more restricted and rigid such requirements are drawn, the greater protection they would afford against the interference and other undesirable results risked by the authorization of repeaters in the VHF band.

[1] K8BW-TV, Salinas, California; KOA-TV, Denver; KKTV, Colorado Springs; KREX-TV, Grand Junction, Colorado; KID-TV, Idaho Falls; KIDO-TV, Boise; KLIX-TV, Twin Falls, Idaho; KGHL-TV and KOOK-XV, Billings; KMOS-TV, Missoula and KXLF, Butte, Montana; KLTV, Tyler, Texas; KOTA-TV, Rapid City, South Dakota; KUTV, Salt Lake City, Utah; KFBG-TV, Cheyenne; KSPR-TV and KTWO-TV, Casper, Wyoming.

On the other hand, the more technical and operating requirements are relaxed the lower the costs of construction and installation of such equipment. The Commission has endeavored to seek an optimum balance between extremes and believes that the requirements set out in the appended draft rules, all things considered, reflect such a balance. We have accordingly decided to invite the comments of interested parties on the proposals appended hereto. The draft rules would parallel, insofar as appropriate, the present rules covering television broadcast translator stations using authorized UHF channels.

3. One of the more difficult problems which must be met if these devices were to be premitted in the VHF television broadcast band is that of interference to television broadcast reception, interference to other radio services which occupy bands interspersed through the television bands, and interference between translators. The first of these is usually met by limiting the maximum power and antenna height and specifying a minimum geographic separation. Except for the power limit, these measures are not practical in the present case. Elevated sites are usually needed in order to obtain a signal to rebroadcast and the transmitting apparatus must be located at the receiving site. Any predetermined geographic separation based on statistical engineering data would severely restrict the areas in which the VHF translators could be located and limit the number to only a few of the several hundred devices that are already in operation. The second problem of interference to other services in contiguous bands could be met by requiring highly refined transmitting equipment and adequate supervision of the operation by trained radio operators. Such an operation would be costly to install and operate. The third problem could be met by applying the normal measures used to prevent interference between regular stations, i.e.. limits on power, antenna height, and geographic separation. The practical limits of this are obvious.

4. We have decided to meet this problem by proposing transmitter power output limited to 1 watt. By thus limiting the scope of any interference which might arise we could then permit the use of elevated antennas, reduce the performance requirements for the equipment, and allow the routine operation of the apparatus to be carried on by a technically unskilled operator. Even with power so limited these devices would be capable of causing interference, and since normal geographical separations cannot be used, we propose that the licensees of these devices provide full interference protection to direct reception of all television broadcast stations, and to a limited extent to each other. By a judicious choice of channel and transmitter location the problem of mutual interference between these low power VHF translators can be minimized. Whenever it occurred, the affected licensees would be expected to settle the problem by mutual agreement and cooperation. Interference to direct reception of TV broadcast ststions is likely to be more serious. Such signals are often received by UHF translators, other VHF translators, and community antenna systems, as well as a few private individuals, with antennas at elevated sites similar to those used by a VHF translator. Since these sites are suitable for long distance reception of TV broadcast stations they are also ideal for detection of the signals of low power VHF translators on other mountains. Whenever this creates interference to direct reception of a television broadcast station, the VHF translator would have to cease causing interference.

5. There may be occasions when the limit to 1 watt of power would prevent a VHF translator from serving as large an area as it might desire. In such cases, the operation could be conducted on a UHF channel with higher power. The relative absence of congestion which makes the observance of minimum geographic separations feasible in the UHF band, and the fact that the UHF band is not interspersed with other radio services, permits the use of higher power in that band and UHF translators may use up to 100 watts transmitter power output.

6. The rules proposed herein would be incorporated in the present rules governing television broadcast translator stations operating in the UHF television band. At the same time the rules governing UHF translators would be modified, where necessary, to conform with the general principles governing this type of operation.

7. The rules proposed herein would not permit the use of the so-called cochannel booster amplifier. This type of device consists simply of an amplifier which receives, amplifies, and retransmits on the same channel. Although this type of device was used at many of the early unlicensed stations their faults and limitations have caused them to virtually disappear. These devices are inherently unstable electrically, and are capable of transmitting false and misleading signals when operated in the VHF television band. The Commission considers the use of such devices under the type of relaxed requirements contained in these rules, to be dangerous and not in the public interest.

8. With respect to proposed VHF translator operations in the vicinity of the Canadian and Mexican borders, the Commission cannot act unilaterally in that regard. Such operation is not contemplated under the outstanding television agreements with those countries. The Commission will initiate action looking to negotiations with the Governments of Canada and Mexico with a view toward securing agreements for the operation of these devices. Meanwhile, if the proposed rules were adopted, applications for VHF translators would be taken upwith the appropriate Government on a case-by-case basis.

9. The proposal under consideration herein contemplates authorization, pursuant to the appended rules, of *new* VHF translators. Repeater facilities installed prior to the issuance of a construction permit by the Commission give rise to problems under Section 319(a) of the Communications Act of 1934, which has been construed to prohibit the granting of a license authorizing the use by broadcast stations of facilities constructed before the issuance of a construction permit by the F.C.C. The Commission has submitted to Congress legislative recommendations directed to this problem.

10. Authority for adoption of the rules appended hereto is contained in Sections 4(i), 301, 303(a), (b), (c), (d), (e), (f), (g), (h), (p) and (r) and 307(b) of the Communications Act of 1934, as amended.

11. Any interested party who is of the opinion that the proposed amendment should not be adopted, or should not be adopted in the form set forth herein, may file with the Commission on or before January 11, 1960, a written statement or brief setting forth his comments. Comments in support of the proposed amendment may also be filed on or before the same date. Comments or briefs in reply to the original comments may be filed within 10 days from the last day for filing said original comments. No additional comments may be filed unless (1) specifically requested by the Commission or (2) good cause for the filing of such additional comments is established.

12. In accordance with the provisions of Section 1.54 of the Commission's Rules and Regulations, an original and 14 copies of all statements, briefs, or comments shall be furnished the Commission.

FEDERAL COMMUNICATIONS COMMISSION,
MARY JANE MORRIS, *Secretary.*

Attachment: Appendix.
Adopted: December 2, 1959.
Released: December 4, 1959.

APPENDIX

PROPOSED AMENDMENTS TO § 4.701–§ 4.784 OF SUBPART G, PART 4 OF THE RULES

§ 4.701 *Definitions.* (a) Television broadcast translator station: A station in the broadcasting service operated solely for the purpose of retransmitting the signals of a television broadcast station or another television broadcast translator station, by means of direct frequency conversion and amplification of the incoming signals and without significantly altering any characteristic of the incoming signal other than its frequency and amplitude, for the purpose of providing television reception to the general public.

(b) Primary station: The television broadcasting station radiating the signals which are retransmitted by a television broadcast translator station.

(c) VHF translator: A television broadcast translator station operating on a VHF television broadcast channel.

(d) UHF translator: A television broadcast translator station operating on a UHF television broadcast channel.

§ 4.702 *Frequency assignment.* (a) An applicant for a new television broadcast translator station or for changes in the facilities of an authorized station shall endeavor to select a channel on which its operation will not be likely to cause interference to the reception of other stations. The application must be specific with regard to the frequency requested. Only one channel will be assigned to each station.

(b) An applicant for a VHF translator station may specify any standard VHF television broadcast channel. VHF translators are not required to observe a minimum separation from television broadcast stations operating on the channel used by the translator or on an adjacent channel. However, the use of such channels by VHF translators is secondary to the use by television broadcast stations and VHF translators must provide complete interference protection to reception of existing and future television broadcast stations.

(c) An applicant for a UHF translator may specify any one of the upper 14 UHF television broadcast channels between 70 and 83, inclusive, provided that the proposed translator will not be located:

(1) Within 20 miles of a television broadcast station or city which is assigned the second, third, fourth, fifth, or eighth channel above or below the requested channel;

(2) Within 55 miles of a television broadcast station or city which is assigned an adjacent channel;

(3) Within 60 miles of a television broadcast station or city which is assigned the seventh channel above or the seventh or fourteenth channel below the requested channel;

(4) Within 75 miles of a television broadcast station or city which is assigned the fifteenth channel below the requested channel;

(5) Within 155 miles of a television broadcast station or city which is assigned the same channel as the requested channel unless the proposed channel is already assigned to the city in which the translator is to be operated, in the Table of Assignments appearing in § 3.606(b) of this chapter.

(d) The distances specified in paragraph (c) of this section are to be determined between the proposed site of the television broadcast translator station and the Post Office location in any city listed in § 3.606(b) of this chapter unless the channel shown therein has been assigned to a television broadcast station, in which case the distance shall be determined between the proposed site of the translator and the transmitter site of the television broadcast station. Changes in the Table of Assignments of § 3.606(b) of this chapter may be made without regard to existing or proposed television broadcast translator stations and, where such changes result in minimum separations less than those specified above, the licensee of an affected television broadcast translator station shall file an application for a change in channel assignment to comply with the required separations.

(e) No minimum distance separation is specified between television broadcast translator stations operating on the same channel. However, the separation shall in all cases be adquate to prevent mutual interference.

(f) Adjacent channel assignments will not be made to television broadcast translator stations intended to serve all or a part of the same area.

§ 4.703 *Interference.* (a) An application for a new television broadcast translator station or for changes in the facilities of an authorized station will not be granted where it is apparent that interference will be caused. In general, the licensee of a new UHF translator shall protect existing UHF translators from interference resulting from its operation. If interference develops between VHF translators, the problem shall be resolved by mutual agreement among the licensees involved.

(b) It shall be the responsibility of the licensee of a VHF translator to correct at its expense any condition of interference to the direct reception of the signals of a television broadcast station operating on the same channel as that used by the VHF translator or on an adjacent channel, which occurs as the result of the operation of the translator. Interference will be considered to occur whenever reception of a regularly used signal is impaired by the signals radiated by the translator, regardless of the quality of such reception or the strength of the signal so used. If the interference cannot be promptly eliminated by the application of suitable techniques, operation of the offending translator shall be suspended and shall not be resumed until the interference has been eliminated. If the complainant refuses to permit the translator licensee to apply remedial techniques which demonstrably will eliminate the interference without impairment of the original reception, the licensee of the translator is absolved of further responsibility.

(c) It shall be the responsibility of the licensee of a television broadcast translator station to correct any condition of interference which results from the radiation of radio frequency energy by its equipment on any frequency outside the assigned channel. Upon notice by the Commission to the station licensee or operator that such interference is being caused, the operation of the television broadcast translator station shall be suspended immediately and shall not be resumed until the interference has been eliminated or it can be demonstrated that the interference is not due to spurious emissions by the television broadcast translator station: *Provided, however,* That short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures.

(d) In each instance where suspension of operation is required, the licensee shall submit a full report to the Commission after operation is resumed, containing details of the nature of the interference, the source of the interfering signals, and the remedial steps taken to eliminate the interference.

ADMINISTRATIVE PROCEDURE

§ 4.711 *Administrative procedure.* See §§ 4.11 to 4.16 inclusive.

LICENSING POLICIES

§ 4.731 *Purpose and permissible service.* (a) Television broadcast translator stations provide a means whereby the signals of television braodcast stations may be retransmitted to areas in which direct reception of such television broadcast stations is unsatisfactory due to distance or intervening terrain barriers.

(b) A television broadcast translator station may be used only for the purpose of retransmitting the signals of a television broadcast station or another television broadcast translator station which have been received directly through space, converted to a different channel by simple heterodyne frequency conversion, and suitably amplified.

(c) The transmissions of each television broadcast translator station shall be intended for direct reception by the general public and any other use shall be incidental thereto. A television broadcast translator station shall not be operated solely for the purpose of relaying signals to one or more fixed receiving points for retransmission, distribution, or further relaying.

(d) The technical characteristics of the retransmitted signals shall not be deliberately altered so as to hinder reception on conventional television broadcast receivers.

(e) A television broadcast translator station shall not deliberately retransmit the signals of any station other than the station it is authorized by license to retransmit. Precautions shall be taken to avoid unintentional retransmission of such other signals.

§ 4.732 *Eligibility and licensing requirements.* (a) A license for a television broadcast translator station may be issued to any qualified individual, organized group of individuals, broadcast station licensee, or local civil governmental body upon an appropriate showing that plans for financing the installation and operation of the station are sufficiently sound to insure continuation of the operation for the period of the license.

(b) More than one television broadcast translator station may be licensed to the same applicant, whether or not such stations serve substantially the same area, upon an appropriate showing of need for such additional stations.

(c) Only one channel will be assigned to each television broadcast translator station. Additional television broadcast translator stations may be authorized to provide additional reception. A separate application is required for each television broadcast translator station and each application shall be complete in all respects.

§ 4.733 [Reserved.]

§ 4.734 *Remote control operation.* (a) A television broadcast translator station may be operated by remote control provided that such operation is conducted under the following conditions:

(1) A monitoring point shall be established on premises under the control of the licensee or its agent, within the area served by the translator. It shall be equipped with a television receiver in good operating condition and suitable for observing the transmissions of the translator.

(2) An operator meeting the requirements of § 4.766 shall observe the transmissions of the translator at the monitoring point within 1 hour after the start of any period of operation and at intervals of not more than 6 hours during operation. The operator shall promptly correct any condition of improper operation observed and if unable or not qualified to do so under the provisions of § 4.766(b), shall immediately suspend operation until suitable repairs or adjustments can be made.

(3) An entry shall be made in the operating log of the station at the time each visit to the monitoring point is made showing the date and time, the condition of operation noted, and any corrective action taken.

(4) If the transmitting apparatus is installed at a location which is not readily accessible at all hours and in all seasons, means shall be provided for manually turning the transmitting apparatus off at a point which is readily accessible at all hours and in all seasons. The control circuit shall be so designed that failure of the circuit which results in loss of control from the control point will place the transmitter in a non-radiating condition.

(5) The transmitting apparatus and control point shall be protected against tampering by unauthorized persons.

(6) The transmitting apparatus shall be equipped with suitable automatic circuits which will place it in a non-radiating condition in the absence of an incoming signal.

(b) An application for a new television broadcast translator station proposing remote control operation shall be accompanied by a showing as to the manner of compliance with the requirements of paragraph (a) of this section. Any proposal to change an authorized translator from direct operation to remote control operation shall be submitted in the form of an application for modification of existing authorization accompanied by the same showing of compliance.

§ 4.735 *Power limitations.* (a) The transmitter power output of a VHF translator shall be limited to a maximum of 1 watt peak visual power. In no event shall the transmitting apparatus be operated with power output in excess of the manufacturers rating.

(b) The transmitter power output of a UHF translator shall be limited to a maximum of 100 watts peak visual power. In no event shall the transmitting apparatus be operated with power output in excess of the manufacturers rating.

(c) No limit is placed upon the effective radiated power which may be obtained by the use of horizontally or vertically directive transmitting antennas.

§ 4.736 *Emissions and bandwidth.* (a) The license of a television broadcast translator station authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3).

(b) Standard width television channels will be assigned and the transmitting apparatus shall be operated so as to limit spurious emissions to the lowest practicable value. Any emissions including intermodulation products and radio frequency harmonics which are not essential for the transmission of the desired picture and sound information shall be considered to be spurious emissions.

(c) Any emissions appearing on frequencies more than 3 megacycles above or below the upper and lower edges respectively of the assigned channel shall be attenuated no less than 30 decibels below the peak visual carrier power.

(d) Greater attenuation than that specified in paragraph (c) of this section may be required if interference results from emissions outside the assigned channel.

§ 4.737 *Antenna location.* (a) An applicant for a new television broadcast translator station or for a change in the facilities of an authorized station shall endeavor to select a site which will provide a line-of-sight transmission path to the entire area intended to be served and at which there is available a suitable signal from the primary station or stations. The transmitting antenna should be placed above growing vegetation and trees lying in the direction of the area intended to be served to minimize the possibility of signal absorption by foliage.

(b) A site within 5 miles of the area intended to be served is to be preferred if the conditions in paragraph (a) of this section can be met.

(c) Consideration should be given to accessibility of the site at all seasons of the year and to the availability of facilities for the maintenance and operation of the television broadcast translator station.

(d) The transmitting antenna should be located as near as is practical to the transmitter to avoid the use of long transmission lines and the associated power losses.

(e) Consideration should be given to the existence of strong radio frequency fields from other transmitters at the translator site and the possibility that such fields may result in the retransmission of signals originating on frequencies other than that of the primary station.

EQUIPMENT

§ 4.750 *Equipment and installation.* (a) An application for construction permit for a new television broadcast translator station or for changes in the facilities of an authorized station shall specify equipment which has been type approved by the Commission.

(b) Type approval will be granted only after tests have been made at the Commission's Laboratory, Laurel, Mayland. Manufacturers may submit a production model for type approval and such approval, if granted, will be considered to apply to all identical models manufactured under that type number. No change, either mechanical or electrical, may be made in any type approved apparatus without prior approval of the Commission upon appropriate application therefor. Type approval may be withdrawn at any time if the apparatus fails to meet the requirements under which type approval was granted.

(c) Type approval will be granted only if the apparatus meets the following requirements:

(1) The frequency converter and associated amplifiers shall be so designed that the electrical characteristics of the incoming signal will not be altered significantly upon retransmission except as to frequency and amplitude.

(2) The overall characteristics of the apparatus shall be such that:

(i) Any emissions appearing on frequencies more than 3 megacycles above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than 30 decibels below the peak visual carrier power output.

(ii) This suppression shall be obtained regardless of whether such emissions are generated within the transmitting apparatus or are produced by the introduction of an external signal into the input circuits of the apparatus.

(3) The local oscillator employed in the frequency converter shall be sufficiently stable that, subject to variations in ambient temperature between minus 30 degrees and plus 50 degrees Centigrade and power main-voltage variations between 85 percent and 115 percent of the rated supply voltage, its frequency will not vary from the design frequency by more than 0.02 percent.

(4) The overall response of the apparatus when operating at its rated power output, as measured at the output terminals, shall provide a smooth curve varying within limits separated by no more than 4 decibels within the assigned channel; *Provided, however,* that means may be provided to reduce the amplitude of the aural carrier below those limits if necessary to prevent intermodulation which would mar the quality of the retransmitted picture. The overall response, measured with respect to the peak response within the assigned channel, shall not exceed the following levels:

(i) Zero decibels on frequencies no more than 3 megacycles from the upper and lower edges of the assigned channel.

(ii) Minus 30 decibels on frequencies between 3 and 6 megacylces above or below the upper and lower edges, respectively, of the assigned channel.

(iii) Minus 40 decibels on frequencies more than 6 megacycles above or below the upper and lower edges, respectively, of the assigned channel.

(5) The apparatus shall contain automatic circuits which will maintain the peak visual power output within 2 decibels of the nominal power output when strength of the input signal is varied over a range of 30 decibels and which will not permit the peak visual power output to exceed transmitter power rating under any condition. If a manual adjustment is provided to compensate for different average signal intensities which may be encountered in various locations, provision shall be made for determining the proper setting of the manual adjustment by means of a meter or meter jack to measure direct current or voltage of appropriate circuits in the translator. If improper adjustment of the manual control could result in improper operation of the translator, a label shall be affixed at the adjustment control bearing a suitable warning.

(6) The apparatus shall be equipped with automatic circuits which will place it in a non-radiating condition when no signal is being received on the input channel, either due to absence of a transmitted signal or failure of the receiving portion of the translator. The automatic circuits may include a time delay feature to prevent interruptions in the translator operation due to signal fading or other momentary failures of the incoming signal.

(7) The tube or tubes employed in the final radio frequency amplifier shall be of the appropriate power rating to provide the rated power output of the translator. The manufacturer shall specify the correct direct current and voltage applied to the plate of the final amplifier tube or tubes to obtain the rated power output. The apparatus shall be equipped with suitable meters or meter jacks so that the values of plate current and voltage can be measured while the apparatus is in operation.

(8) The transmitter shall be equipped with an automatic keying device capable of transmitting the call sign assigned to the station in international Morse code within 5 minutes of the hour and half hour. Transmission of the call sign shall be accomplished either by turning the visual and aural carriers on and off in the proper sequence or by super-imposing an audio frequency tone containing the telegraphic identification on the carrier radiated by the translator. The modulation level of the identifying signal shall not be less than 30 percent of the aural signal.

(9) Wiring, shielding, and construction shall be in accordance with accepted principles of good engineering practice.

(d) (1) Any manufacturer desiring to submit a translator for type approval shall supply the Commission with full specification details (two sworn copies) as well as the test data specified in this section. If this information appears to meet

the requirements of the rules, shipping instructions will be issued to the manufacturer. The shipping charges to and from the Laboratory at Laurel, Maryland, shall be paid for by the manufacturer. Approval of a translator will only be given on the basis of the data obtained from a sample translator submitted to the Commission for test.

(2) In approving a translator upon the basis of the tests conducted by the Laboratory, the Commission merely recognizes that the type of translator has the inherent capability of functioning in compliance with the rules, if properly constructed, maintained, and operated.

(3) Additional rules with respect to withdrawal of type approval, modification of type approved equipment, and limitations on the findings upon which type approval is based are set forth in Part 2, Subpart F, of this chapter.

(e) The installation of a television broadcast translator station shall be made only by, or under the direct supervision of, a qualified electronics engineer, and any repairs or adjustments made during or subsequent to the installation, which could result in improper operation, shall be made by or under the direct supervision of an operator holding a valid first or second class radiotelephone operators license issued by the Commission.

(f) The choice of transmitting and receiving antennas is left to the discretion of the applicant. In general, the transmitting antenna should be designed to provide maximum signal over the area intended to be served and to minimize radiation over other areas, particularly those in which interference could be caused to the reception of other stations. The Commission reserves the right to require the use of suitable directive transmitting antennas in order to permit the assignment of the same channel to two or more television broadcast translator stations located in the same general area. An application for construction permit for a new television broadcast translator station or for changes in the facilities of an authorized station shall supply complete details of the proposed receiving and retransmitting antenna systems, including an accurate plot of the field pattern of the transmitting antenna, if directive. Either vertical, horizontal, or circular polarization may be used.

§ 4.751 *Equipment changes.* (a) No change, either mechanical or electrical, may be made in type approved apparatus except upon instructions of the manufacturer of the equipment, based upon Commission approval for the change granted to the manufacturer in accordance with § 4.750(b).

(b) Formal application (FCC Form 346) is required for any of the following changes.

(1) Replacement of the transmitter as a whole, except by one of an identical type.

(2) A change in the transmitting antenna system, including the direction of radiation, directive antenna pattern, or transmission line.

(3) An increase in the overall height of the antenna above ground of more than 20 feet or which will result in an overall height above ground of more than 170 feet.

(4) A change of the control point of a remotely controlled television broadcast translator station or any change in the control circuits.

(5) Any change in the location of the transmitter except a move within the same building or upon the same tower or pole, and any horizontal change in the location of the transmitting antenna in excess of 500 feet.

(6) A change of frequency assignment.

(7) A change of authorized operating power.

(8) A change of the primary TV station being retransmitted.

(c) Other equipment changes not specifically referred to above may be made at the discretion of the licensee, provided that the Engineer in Charge of the radio district in which the television broadcast translator station is located and the Commission's Washington, D.C., office are notified in writing upon completion of such changes, and provided further that the changes are appropriately reflected in the next application for renewal of license of the television broadcast translator station.

TECHNICAL OPERATION

§ 4.761 *Frequency tolerance.* The licensee of a television broadcast translator station shall maintain the visual carrier frequency and the aural center frequency at the output of the translator within 0.02 percent of its assigned frequencies when the primary station is operating exactly on its assigned frequency. This tolerance shall not be exceeded, at times when the primary station is not exactly on its assigned frequencies, by more than the amount of departure by the primary station.

§ 4.762 *Frequency monitors and measurements.* (a) The licensee of a television broadcast translator station is not required to provide means for measuring the operating frequencies of the transmitter. However, only equipment having the required stability will be approved for use at a television broadcast translator station.

(b) In the event that a television broadcast translator station is found to be operating beyond the frequency tolerance prescribed in § 4.761, the licensee shall promptly suspend operation of the translator and shall not resume operation until the translator has been restored to its assigned frequencies. Adjustment of the frequency determining circuits of a television broadcast translator station shall be made only be a qualified person in accordance with § 4.750(d).

§ 4.763 *Time of operation.* (a) A television broadcast translator station in not required to adhere to any regular schedule of operation. However, the licensee of a television translator station is expected to provide a dependable service to the extent that such is within its control and to avoid unwarranted interruptions to the service provided.

(b) If causes beyond the control of the licensee require that a television broadcast translator station remain inoperative for a period in excess of 10 days, the Engineer in Charge of the radio district in which the station is located shall be notified promptly in writing, describing the cause of failure and the steps taken to place the station in operation again, and shall be notified promptly when the operation is resumed.

(c) Failure of a television broadcast translator station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuance of operation and the license of the station will be cancelled.

(d) A television broadcast translator station shall not be permitted to radiate during extended periods when signals of the primary station are not being retransmitted.

§ 4.764 *Station inspection.* The licensee of a television broadcast translator station shall make the station and the records, required to be kept by the rules in this subpart, available for inspection by representatives of the Commission.

§ 4.765 *Posting of station and operators licenses.* (a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation shall be posted in a conspicuous place in the room in which the transmitter is located so that all terms thereof are visible: *Provided,* that

(1) If the transmitter is operated by remote control pursuant to § 4.734, the station license shall be posted in the above-described manner at the control point.

(2) If the transmitter is installed so as to be exposed to the elements and posting of the license would result in its being so exposed, the license or a photo copy thereof may be kept in the possession of the operator in charge of the transmitter. If a photo copy is used, the original license shall be conveniently available for inspection by a representative of the Commission.

(b) The original of each station operator license shall be posted at the place where he is on duty: *Provided, however,* That if the original license of a station operator is posted at another radio transmitting station in accordance with the rules governing that class of station and is there available for inspection by a representative of the Commission, a verification card (Form 758–F) is acceptable in lieu of the posting of such license: and *Provided further, however,* That if the operator in charge holds a restricted radiotelephone operator permit of the card form (as distinguished from the diploma form), he shall not post that permit but shall keep it in his personal possession.

§ 4.766 *Operator requirements.* (a) The routine operation of a television broadcast translator station shall be carried on only by a person holding a valid Radiotelephone Operator Permit, or a First or Second Class Radiotelephone Operator license. The operator is not required to continuously supervise the operation of the transmitter but shall observe its operation either at the transmitter or at a monitoring point established pursuant to the provisions of § 4.734 within one hour after the transmitter is placed in operation each day and at intervals of no more than 6 hours during operation.

(b) Any repairs or adjustments to a television broadcast translator station which might result in improper operation of the equipment shall be made only by or under the direct supervision of a person holding a valid First or Second Class Radiotelephone Operator license issued by the Commission.

(c) The licensed operator on duty and in charge of a television broadcast translator station may, at the discretion of the licensee, be employed for other

57535—60——5

duties or for the operation of another station or stations in accordance with the class of license which he holds and the rules and regulations governing such stations. However, such duties shall in nowise interfere with the operation of the television broadcast translator station.

§ 4.767 *Marking and lighting of antenna structures.* The marking and lighting of antenna structures employed at a television broadcast translator station, where required, will be specified in the authorization issued by the Commission. Part 17 of this chapter sets forth the conditions under which such marking and lighting will be required and the responsibility of the licensee with regard thereto.

§ 4.768 *Additional orders.* In cases where the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

§ 4.769 *Copies of rules.* The licensee of a television broadcast translator station shall have current copies of Part 3, Part 4, and Part 17 of this chapter available for use by the operator in charge and is expected to be familiar with those rules relating to the operation of a television broadcast translator station. Copies of the Commission's rules may be obtained from the Superintendent of Documents Government Printing Office, Washington 25, D.C., at nominal cost.

OPERATION

§ 4.781 *Station records.* (a) The licensee of a television broadcast translator station shall maintain an operating log showing the following:

(1) House of operation.

(2) Call letters, channel, and location of primary station or stations.

(3) Time of periodic observation required by § 4.731, and operating conditions, signed by the operator making the observation.

(4) A record of all repairs, adjustments, maintenance, tests, and equipment changes, showing the date of such events, the name and qualifications of the person performing the operation, and a brief description of the matter logged.

(b) Where an antenna structure is required to be illuminated, see § 17.38 of this chapter.

(c) The operating log shall be made available, upon request, to any authorized representative of the Commission.

(d) Station records shall be retained for a period of two years.

§ 4.782 [Reserved]

§ 4.783 *Station identification.* (a) The call sign of a television broadcast translator station shall be transmitted in international Morse Code, by means of an automatic keying device, at the beginning and end of each period of operation and, during operation, within 5 minutes of the hour and half hour. This transmission may be accomplished either by turning the visual and aural carriers of the translator on and off in the proper sequence or by superimposing an audio frequency tone containing the telegraphic identification, on the visual and aural carriers radiated by the translator. The modulation level of the identifying signal shall not be less than 30 percent of the aural signal.

(b) The Commission may, in its discretion, specify other methods of identification.

(c) Call signs for television broadcast translator stations will be made up of the initial letter K or W followed by the channel number assigned to the translator and two letters. The use of the initial letter will generally follow the pattern used in the broadcast service, i.e., stations west of the Mississippi River will be assigned an initial letter K and those east of the Mississippi River the letter W. The two letter combinations following the channel number will be assigned in order and requests for the assignment of particular combinations of letters will not be considered.

§ 4.784 *Rebroadcasts.* (a) The term "rebroadcast" means the reception by radio of the programs or other signals of a radio or television station and the simultaneous or subsequent retransmission by radio of such programs or signals for direct reception by the general public.

(b) The licensee of a television broadcast translator station shall not rebroadcast the programs of any television broadcast station or other television broadcast translator station without obtaining prior consent of the station whose signals or programs are proposed to be retransmitted. The Commission shall be notified of the call letters of each station rebroadcast and the licensee of the television broadcast translator station shall certify that express authority has been received from the licensee of the station whose programs are retransmitted.

(c) A television broadcast translator station is not authorized to rebroadcast the transmission of any class of station other than a television broadcast, or another television broadcast translator station.

The CHAIRMAN. Thank you very much, Commissioner, and all of your associates, for your testimony here today.

Did you have anything else?

Mr. FORD. No, sir.

The CHAIRMAN. Do any of your associates on the Commission have anything further to say?

Mr. FORD. I just checked with them, sir, and they indicated no.

The CHAIRMAN. I did intend to ask this question: You are speaking for the Commission, and the Commission is unanimous?

Mr. FORD. The members of the Commission present unanimously support it. I do not think Commissioner Bartley has seen this testimony and, so, I would not like to include him in it without his knowledge and consent.

The CHAIRMAN. Yes; I appreciate that and I am glad to have that for the record.

Thank you very much for your appearance here and your testimony. You may be excused.

It is my understanding that Senator McGee is here from Wyoming. Is the Senator still here?

STATEMENT OF HON. GALE McGEE, A U.S. SENATOR FROM THE STATE OF WYOMING

Senator MCGEE. I am still here, Mr. Chairman.

The CHAIRMAN. Senator, I am sorry that we have detained you. I understood you came in a few minutes ago. We are glad to welcome you to this hearing. Obviously, we can understand your interest in it and we would be glad to have your statement.

Senator MCGEE. Mr. Chairman, no apology is due me, because it has been rewarding to sit in on the exchange of information between the chairman and members of the committee and the members of the Commission itself.

On our side we have been going through some of the same things, but you learn something more each time as we pass through it. So, this has been far from a waste of time, I assure you.

I want to say just a word or two, if I may, Mr. Chairman, not as a member on our subcommittee on the Senate side, or, at least, less because of that than because of my geographical location as a Senator from Wyoming in the Rocky Mountains West.

This question has acquired a real concern for us because of the peculiarities of our topography out there and because of the class of our citizens—and I say "class" in quotes—it has been determined by our geographic location rather than anything else—that has been without any kind of TV signal. They are in areas too remote, with the population too low, so as not to be able to support a so-called cable system. The topography has prevented the direct receipt of a signal from a live broadcast station and this, thus, produces a situation quite unique in our part of the world.

What I would say about the second-class TV citizens, as we sometimes call them, would be two things: One, would have to do with those who have now been receiving this signal without authorization—

official authorization—and two, those who are still waiting to receive it because they suspended any particular activity on their part awaiting the FCC action in this case.

Those who were impatient, may I say in their behalf, became impatient only after a succession of delays and redelays and the Commission's reluctance to make a ruling on this question.

After December 1958 when the Commission first announced a deadline for all boosters getting off the air, the decision was vigorously protested and has successively been extended—this deadline—for six or eight times. The feeling was very strong and still exists in many areas that the Commission had the authority to justify these from the beginning and to bring them under authority of the FCC. In any case, in order to get this signal, these people taking the admitted risks with their own resources, by voluntary solicitations and not by any fee regulation, set up at a very nominal cost the booster system.

These booster people have been back here to testify before both of our groups. We have held hearings out there on the spot and I have been impressed with the fact that here was a little bit of a remnant of what we used to call Yankee ingenuity, with a bit of Rube Goldberg thrown in, because here was baling wire and an old abandoned refrigerator, a couple of pieces of tubing, which they were able to latch to a piece of sagebrush high on a rock at the top of the hill a device which would bring to citizens otherwise denied this image a real picture on their screen for the first time, and it is that ingenuity, I think, which has inspired a great deal of admiration.

The problem is in making certain that these particular installations, do not, in the freedom that they represent, infringe upon any of the basic areas of social responsibility or freedom unfairly, and that is the reason that these groups from the Far West have begged for acceptance within the body of the FCC for regulation.

Because they have not yet been so received, they have become the victims of a great deal of vilification out in some areas of the West. There have been newspaper advertising campaigns launched against them, charging them as being illegal citizens, bringing pressure on community citizens not to indulge or participate in an illegal operation, and it has created the kind of community friction that has been unfortunate as a byplay of the necessary way in which this whole problem came about.

I, personally, have climbed to the top of some of these mountains to examine these jerry-built things. I have seen the firsthand evidence of the expionage that went on in all kinds of directions to try to prohibit their continuance from competing groups.

I think it all comes down to the simple fact that through some kind of responsible bookkeeping and regulation by the FCC that these people will find a place, and a proper place in the TV spectrum in receiving TV signals in this country.

The second group—and we have many of these in my own State—represents those communities who did wait through these successive postponements of the FCC in trying to arrive at a decision on this question. These people are still waiting. These people are wondering when they are going to get their first TV signal.

So, I would like to think that the legislation that is now pending, S. 1886, would remove whatever blocks still remain in the mind of the FCC for proceeding in an orderly fashion to accord the booster operation a responsible role in the community picture.

I think if we keep in mind these two groups—the ones who have ultimately gone into it, not in the sense of an illegality but in the sense of desperation where there seemed to be no really illegal reason for not doing it, and have become the victims of all kinds of pressure to surrender this signal—and those who have, for their own reasons, bided their time and waited until these were "legalized," that these people now have a right to expect, and I would hope, would receive from the Congress of the United States the kind of authorization that their situation requires.

I cannot stress too strongly the urgency, as far as our region is concerned—and it is not something that we can very easily do without indefinitely, particularly in those areas that have waited—for something being done, and for that reason, I would hope that we might be able to give them some kind of legislation on this this time.

Mr. Chairman, that is all I want to say here this morning, and I do very much appreciate the committee's time, particularly at this hour of the morning. I do not know whether you have any questions. I am a lay expert on this. I have learned a little bit about it, only by osmosis by sitting through hearings, but I am at your service if there is anything the committee would like to ask.

The CHAIRMAN. Senator, you are a member of the Committee on Interstate and Foreign Commerce in the other body?

Senator MCGEE. Yes, sir.

The CHAIRMAN. And, you worked on this problem and came to this solution?

Senator MCGEE. We felt that this was a necessary solution for the Congress, as you said, to shore up the spine of the FCC Commission.

The CHAIRMAN. You have had an opportunity to talk not only with those in the agency and with your colleagues in the Senate and probably some of our colleagues in the House, but you have also discussed it with representatives of the departments, have you not?

Senator MCGEE. Indeed so, yes, all representatives.

The CHAIRMAN. Is everybody in favor of this bill?

Senator MCGEE. I think all of the groups involved are now in favor of this bill. Some had misgivings at first because they were not sure how the ramifications of the problems would be worked out, but I think all are satisfied now.

The CHAIRMAN. Under the present arrangement, do you know of anybody who is opposed to this legislation?

Senator MCGEE. I do not know of anyone who is opposed to this bill.

The CHAIRMAN. Are any of the groups in your State of Wyoming or any of the other States where they have this operation opposed to it?

Senator MCGEE. I have received no notices since this bill has been sifted out of a lot of earlier proposals, singled out for special treatment itself, isolated from other aspects of the problem. I know of no opposition in our area to this bill.

The CHAIRMAN. If that situation is true, I might suggest that those who follow had better make it brief, because something might be misunderstood and it might bring about a change in the situation.

Senator MCGEE. Likewise, we were much concerned about this question of channel interference.

The CHAIRMAN. I have been concerned about it for some time.

Senator McGEE. We were satisfied that channel interference can occur in an existing TV channel as it operates now if it strays or wanders. These are minimized by rules and regulations, and I think that is all the human element can supply in this sort of thing.

The CHAIRMAN. Have you any questions, Mr. Moss?

Mr. Moss. No questions.

The CHAIRMAN. Mr. Avery, any questions?

Mr. AVERY. Briefly.

Senator, we are honored to have you with us this morning, of course. Is Wyoming one of these States which has undertaken to license these booster stations under State authority?

Senator McGEE. No, Wyoming has not undertaken to license booster stations.

Mr. AVERY. Would you be able to tell us approximately how many of these booster stations are located in Wyoming?

Senator McGEE. How many we have in the State of Wyoming?

Mr. AVERY. Yes.

Senator McGEE. We have about 60 or 70.

Mr. AVERY. One more brief question. The newspapers ran ads discouraging people to become associated or affiliated with a rebroadcasting effort. Who paid for those ads?

Senator McGEE. Those ads at the time were introduced by some of the competing cable systems. That happened to be at a time when legislation was first being introduced tying this question of the boosters and the problem of the cables together in a single piece of legislation. I think this has been removed since.

Mr. AVERY. One further observation. You mentioned you had these two distinct groups of under privileged TV viewers in the State of Wyoming—No. 1, those who have become affiliated with a rebroadcast organization and are living in some trepidation as to what might happen to their facilities; and the second group, those who were still waiting.

As I read this, it will not do anything for those who are still waiting, because the authority for their licenses has been set up under the rulemaking power of the Federal Communications system. This will bring relief only to those who have already established a facility and are waiting for it to be officially recognized.

Senator McGEE. If I understand correctly—and I certainly can be corrected on this—while it does "grandfather" in the existing cases, the FCC is now prepared in its rulemaking to consider the new groups which have held off, and they would abide by the same set of regulations. Everybody would be playing the same rules and the same game.

Mr. AVERY. I just thought it would be important to mention, especially since it is specifically stated in the amendment to section 319 that this would apply only to such television signals "if such station was constructed on or before the date of enactment of the act."

Senator McGEE. As I understand it, the reason for this bill is to try to do something with these nearly 1,000 boosters which are already in but those which have waited to come in would be in a position to petition the FCC in their own right for inclusion. This bill is to remove one of the roadblocks to those already in existence.

Mr. AVERY. I would not assume anything would be in their way now to proceed with their application.

Senator McGEE. The disagreement which prevailed was over what minimum standards should a booster station be required to observe so it does not stray off the channel, does not interfere with an airport, and that sort of thing, and the FCC is now ready to agree upon that kind of minimum set of standards. Once that is done, then any new group can come in.

Mr. AVERY. That is right, but it has no relation to this bill.

Senator McGEE. Not to this bill. This is removing a barrier from the past.

Mr. AVERY. That is what I wanted to establish. Thank you, sir.

The CHAIRMAN. You do agree that it is almost imperative that this situation be cut off someplace and not continue to expand and expand without a look at it before construction and installation of such facilities?

Senator McGEE. I think every single case should be looked at, and I think that is probably envisaged by the FCC. I do not think this is a blanket bringing in of these existing boosters at all. As I understand it, they have to make their case. They have to meet the minimum standards.

The CHAIRMAN. I would not agree there are minimum standards to meet here for those already in operation, except interference and, as explained today, complying with section 325. I think it is incumbent upon the Commission automatically to license these unless they find it is against the public interest, convenience, and necessity.

Senator McGEE. If they violate the public interest, convenience, and necessity of the Federal Communications Act, then they are automatically not eligible for being licensed by the FCC.

The CHAIRMAN. The point is, you do not anticipate anybody will be thrown off the air who is already on the air; do you?

Senator McGEE. That I think would be the FCC's decision in the event there is a station, for example, which is operating at such a wattage that it does pose interference. I do not know whether such exists, but I think that has to fall to the rulemaking of the FCC.

In other words, I do not think, Mr. Chairman, that it is automatic. I think they have to be brought in.

The CHAIRMAN. But you agree that in the future anyone should be prohibited from just going out on their own and setting up facilities and starting operations?

Senator McGEE. They should be prohibited from going out and building anything they please, where they please, at whatever power they please. They have to petition and meet certain minimum standards, I agree. I think that is the thing that all seek in this, an orderly procedure in this new area.

The CHAIRMAN. In other words, this virtually would stop this operation from spreading as it has been in the last several years.

Senator McGEE. Spreading like Topsy, at least. It would spread in orderly fashion.

The CHAIRMAN. You agree that should be done?

Senator McGEE. Yes, indeed so.

The CHAIRMAN. All those people in your part of the country understand that?

Senator McGEE. They not only understand it. They have paid their own way back here to beg us to put them under the regulation of the FCC.

The CHAIRMAN. Senator, thank you very much for your very forthright statement here and for your presentation of this matter, not only from the standpoint of a public official and as a member of the Committee on Interstate and Foreign Commerce in the other body, but also from the standpoint of your interest in your own constituency out in Wyoming.

Senator MCGEE. I want to thank you, Mr. Chairman and the members of the committee, for indulging this extension of the noon hour.

The CHAIRMAN. Thank you very much for your testimony.

Mr. Ford, I wanted to ask you and your legal force here one question which should not be difficult to dispose of.

Page 1, line 8, refers to "television broadcasting stations." Page 2, line 4, refers to "rebroadcasting television signals." The Federal Communications Act refers to "radio broadcasting." Nowhere in the act do I believe there is a definition of the term "television."

Is that a technicality which should be cleared up in order to conform?

I am asking for this information because when we work with our staff they become pretty technical sometimes, and I want to be in a position to answer them.

Mr. FORD. May I have just a minute to confer with Mr. FitzGerald?

The CHAIRMAN. Surely.

Mr. FORD. In section 3(c) of the Communications Act, "radio station" or "station" is defined to mean a station equipped to engage in radio communication or radio transmission of energy.

I believe the *NBC* case construed that to include television signals. While it is true——

The CHAIRMAN. I am talking about making the act conform to the language here in the bill.

Mr. FORD. There is no definition of television signals in the Communications Act. I think in considering this, television is such a well-known thing that no definition other than the definition here was considered necessary. We considered it immaterial. Television signals would be a signal radioing a picture and using radio communications for the purpose of transmitting the signal.

The CHAIRMAN. Do you not think it ought to be defined? I understand from those who have advised us about these definitions that "television" is included in "radio."

If you would conform the bill to the act, do you not think we should put in "radio signals" instead of "television"?

Mr. FORD. We felt that the act should make that distinction and be a narrow act, and that the term "television signal" was so well known that an additional definition was unnecessary. In other words, it is a common term. We did not believe it necessary to define every single term used, and felt that the definition of "radio station" was broad enough to include television station. But this particular legislation, it would be clear on its face, would be intended——

The CHAIRMAN. I think that is right, but might we not be getting in trouble down the line unless we clear it up? That is the only question I raise.

Anyway, be thinking it over, and if you have any ideas about it, let me know about it later.

Mr. FORD. I think perhaps the staff and the Commission are agreed that it is not necessary, but in order that the record be clear, I think perhaps a further statement a little more closely worded should be submitted to the committee.

The CHAIRMAN. I think you had better consider that the sound part of television operation is actually radio.

Mr. FORD. That is right, sir.

The CHAIRMAN. You had better consider that along with it. I just bring this up because it could very well cause some difficulty in the future. I think you understand what it is and administer it that way, but we will have something else down the way with reference to amendments to this act as we have had in the past.

Mr. FORD. Rather than give a categorical answer which may not be phrased precisely, if the committee will permit, I think a further statement on the part of the Commission addressed to this particular question should be submitted.

The CHAIRMAN. I should think probably in order to make it conform so there would be no problem at all, you should put in, as the act provides, "radio," which includes "television," and then in parentheses behind it, "television." Then there would be no question about it.

Mr. FORD. That was suggested here by one of the staff members, Mr. Chairman, but rather than to seize on a prompt answer, I think perhaps we should give it careful consideration.

The CHAIRMAN. Thank you very much.

I would not be surprised, having dealt with our legislative counsel's office and staff before, if that was what they would recommend. Thank you very much. You may be excused. Thank you for your cooperation.

Mr. FORD. Thank you.

The CHAIRMAN. May I inquire if the several witnesses listed here to testify might desire just to make their appearance and file their statements, under the circumstances.

STATEMENT OF VINCENT T. WASILEWSKI, DIRECTOR OF GOVERNMENT AFFAIRS, NATIONAL ASSOCIATION OF BROADCASTERS

Mr. WASILEWSKI. Mr. Chairman, I wish to do so in behalf of the National Association of Broadcasters.

The CHAIRMAN. Mr. Wasilewski, we shall be glad to have your presentation. You are Mr. Vincent T. Wasilewski, manager of Government relations, National Association of Broadcasters?

Mr. WASILEWSKI. Yes, sir. I shall be pleased to submit my statement for the record, if that is your desire.

The CHAIRMAN. Thank you very much. We are glad to have your statement. The association does support the bill?

Mr. WASILEWSKI. Yes, sir.

The CHAIRMAN. Do you know of any opposition to it?

Mr. WASILEWSKI. I know of no opposition to the bill.

The CHAIRMAN. Thank you very much. We are glad to have your statement.

(Mr. Wasilewski's statement follows:)

STATEMENT OF VINCENT T. WASILEWSKI, DIRECTOR OF GOVERNMENT AFFAIRS OF THE NATIONAL ASSOCIATION OF BROADCASTERS

Mr. Chairman, my name is Vincent T. Wasilewski. I am director of Government affairs for the National Association of Broadcasters, which is the business association for the Nation's broadcasters, and its membership is composed of 1,648 AM, 504 FM, and 363 TV stations, as well as the 4 radio and 3 television networks.

I appear here today in support of S. 1886, a bill which would do two things: (1) It would give to the FCC the discretion to waive the requirement for a licensed operator in attendance at a booster station; and (2) it would give to the Commission the right to waive the requirement for a construction permit prior to licensing an existing booster station.

This association has always endorsed the principle of supplying free television service to small and outlying areas beyond the reach of presently existing television stations.

The type of operation with which this bill is concerned is perhaps the most simple of the transmitting facilities presently possible to bring television to remote areas removed from metropolitan centers where the television station is located.

There is no question but that boosters perform a needed and valuable service by providing TV service to parts of the country where it would otherwise be uneconomical to have such service. I know of no accurate count of the number of booster stations in operation, but it is usually estimated as approximating 1,000.

These operations have started without Commission authorization, and without provision either in the statute or in the Commission's rules and regulations for their authorization or regulation. Inasmuch as they are in fact a type of broadcasting, and through their use of the airwaves are capable of causing interference to the reception by the public of a signal from a regular television station, we believe that they should be subject to Federal regulation. For that reason, we support S. 1886.

The basic purpose of a booster station is as we have said—to provide TV service to areas which receive little or no such service because they are remote by distance or terrain from regular TV stations. It is apparent, however, that these boosters could be used to bring in programing from a distant point that would duplicate the programing already being offered by a local, live television broadcasting station. This could have a great deterring effect on a locally operating TV station that originates local programing. Consequently, we believe that the authorization of boosters should be a matter of strict control by the Commission in order to achieve its overall purposes set forth in its sixth report and order, and especially the first two priorities contained therein:

"1. To provide at least one television service to all parts of the United States; (boosters can very effectively do this in many areas).

"2. To provide each community with at least one television broadcast station;" (boosters never originate programs; therefore, they should not be allowed to become a deterrent to the construction of a live facility. The authorization of such services should not be allowed to act as a deterrent to the orderly growth of television under the allocation plan).

A policy of the Commission licensing booster operations, with these objectives in mind, would, we believe, be in the public interest and maintain regulation over all types of broadcast facilities.

Thank you, Mr. Chairman, for the opportunity of presenting these comments.

The CHAIRMAN. I note the presence of our colleague from Nebraska, the Honorable Donald F. McGinley. Mr. McGinley, we will be glad to hear you at this time.

STATEMENT OF HON. DONALD F. McGINLEY, REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA

Mr. MCGINLEY. Mr. Chairman, I appreciate the opportunity to appear before this committee to testify regarding S. 1886, the legislation needed to permit the Federal Communications Commission to

license and regulate the so-called VHF low-power repeaters or "boosters."

First of all I want to say that I have every confidence in the fairness of the FCC to establish a workable arrangement to permit continued operation of the existing VHF boosters where no interference exists, if the obstacles can be cleared by this legislation.

One of the problems, I understand, is trying to make one set of rules fit a variety of situations. The area in my congressional district which is served by VHF boosters is flat, wide-open range country where the possibility of interference is negligible. This is a distinct difference with the mountain-top boosters in other areas. For this reason, I think it is readily apparent that it is in the best interest of the Nation for Congress to pass legislation which will permit the continued operation of existing boosters in a manner determined by FCC engineers where interference with other communications is clearly no factor.

As part of this legislation, I would like to recommend that FCC be allowed the discretionary authority to allow these boosters to operate up to 5 watts of power. Again it would be permitted wherever there is no interference.

Perhaps it might help the committee if I describe the situation in my district. My district has 38 counties which comprise 60 percent of the land area of Nebraska—if it were a State, it would be just larger than Tennessee and just smaller than Pennsylvania. In this entire area there is one television station.

It has, in addition, two satellite stations with local studio facilities and there are areas that are served by two other satellite stations outside the boundaries of my congressional district. This, I think, tells the story. The residents of the Fourth Congressional District of Nebraska rely almost entirely upon secondary television transmission. The areas served by the VHF boosters are unable to receive service from even these secondary satellite sources.

The use of VHF boosters in my district provides the only source for television in a wide area.

My people have invested considerable money in these facilities. However, the requirement to involve themselves in the expensive new service when the present signal transmission does not disturb other communications would seem improper.

The people in my district have indicated that they would willingly adopt whatever minor changes are necessary to have their present facilities meet standards the FCC feels would be necessary to qualify for licensing.

I believe that it is imperative that Congress act this session to provide this permissive authority to license and control the existing VHF boosters. I fear that failure to act by Congress could be interpreted by the FCC to mean that it is the wish of Congress for the original stop order to be put into effect.

The CHAIRMAN. Mr. McGinley, we appreciate your interest in this legislation. Thank you for your testimony.

Mr. MCGINLEY. Thank you, Mr. Chairman.

The CHAIRMAN. May I inquire if anyone else wishes to file a statement? Some you you have come a long way, and we want to give you a chance to be heard or to make your case.

(Off the record.)

The CHAIRMAN. The committee will adjourn until 2 o'clock.

(The subcommittee adjourned at 12:30 p.m., to reconvene at 2 p.m. of the same day.)

AFTERNOON SESSION

The CHAIRMAN. The committee will come to order.

The first witness to be called this afternoon will be Mr. James Beamer, secretary, Tri-State TV Repeater Association, Livingston, Mont.

Mr. Beamer, your entire statement may be included in the record.

You may proceed with an explanation of your statement, if you desire.

STATEMENT OF JAMES BEAMER, SECRETARY, TRI-STATE TV REPEATER ASSOCIATION, LIVINGSTON, MONT.

Mr. BEAMER. Thank you, sir.

My name is James Beamer. I am secretary of the Tri-State TV Repeater Association, and also vice president of the National Television Repeater Association. My home is in Livingston, Mont. I am employed by the Northern Pacific Railroad as a locomotive engineer. My engineering qualifications in the line of television are very slight. I think possibly I represent more the public point of view than I do the engineering point of view, and in that respect I would like to describe to you gentlemen something of the construction and how these boosters are put on the air.

I should like to clarify the term "booster station" by saying we in the West refer to all VHF boosters and translators as booster stations. Do I make myself clear on that, sir? These are in the VHF band. We refer to the UHF translators as the translator operation. It is just a distinction I would like to use here so you gentlemen will know what I am talking about.

When television stations first started being constructed in the West, especially in the Montana area, it was found that signals were available only in and around the cities themselves. Then cable systems started developing in 1952, and with the advent of cable systems the equipment which was used on the cable systems became available and of general knowledge to some of the technicians, the radio repairmen I should say, in the West. They deduced from this and from things which they had read, that this could also be employed as a reradiating device to put a signal out on the air.

In a number of instances in the beginning of the booster television, it was thought that this could be done at a profit to the person who was erecting the station, but in no case did any man ever come out with a profit. Instead, he found it was a losing operation, and that the best thing to do was to put it into the hands of the club and let the community support it.

To do this, he gathered together some interested people in the community who wanted to see television brought to their area. They would form an association or club, if you prefer, and raise the necessary funds to put in the powerlines and to buy the equipment necessary to put in the shack.

I might say the funds for powerlines, houses, and things like that, generally were donated. The labor was donated. The people got together and would hold a regular barn-raising bee, so to speak, and put these things up. The whole community joined us in this effort.

Since that time, in Montana we have 108 of these operations. They serve communities as small as three families up to possibly what is probably the largest booster operation in Montana which services the town of Butte, of approximately 10,000 sets.

We are concerned now with the small areas—by "small" I mean where they have 3, 8, 10, 25, 75, or 100 sets—where there is no other form of recreation or entertainment. In a lot of these places they have only a weekly newspaper. This might be of interest as long as this is a political year. These people are dependent on a weekly newspaper for their information, which does not even carry any news of their candidates. It is only by television that these people receive any information concerning their candidates and concerning their views. It is only by this method that they are able to determine how it would be most practical for them to vote.

Then after the booster station is constructed, the community subscribes to the operation by contributing money about once a year for the cost of the operation—the power costs, the maintenance costs. Again, whenever they are able to donate anything, this is freely given. It is not obligatory——

Mr. AVERY. Mr. Chairman, if I may interrupt, what would be the average contribution for a rebroadcasting facility which had 100 sets?

Mr. BEAMER. It would run in the neighborhood of $10 or $15.

Mr. AVERY. A year or a month?

Mr. BEAMER. Excuse me. I was thinking for the erection of the operation. No. For the maintenance of it, it would run about $3 to $4 a year.

Mr. AVERY. So you have a $1,500 facility plus $300 or $500 operating costs?

Mr. BEAMER. Yes. It would be about $10 or $15 initial cost, and about $3 or $4 a year for operating costs on a 100-set installation.

Mr. AVERY. Thank you.

Mr. BEAMER. It might be well to say, too, that the people in the area are not obliged to pay for this. This is something which is put out free on the air for anybody who has an antenna to pick up. It is only the moral obligation of the community to support this thing. In all instances they have done this very well. That is my personal belief. From looking at the records of the operations of a number of clubs in Montana, I can say this without hesitation.

The folder which I sent up to the committee contains pictures, and I might explain briefly what they are.

Checkerboard, Mont., is the first picture. The station serves an area of approximately 5 miles deep back to that first high ridge, and a width about 2 miles. There are 8 families living in this area. The rest of those buildings are summer residences and of people who come up there to fish in the lake about a mile above the cabins.

The Hogeland, Mont., area is in the northern part of the State, up along the Canadian line; from the looks of it, it is about as flat and barren as anything you would want to see. There are 90 sets in this area served by this station.

These people wrote in to me not too long ago and told me something of ths history of their operation. I would like to read one short paragraph to show about what they will do. They say:

"Due to the hilly terrain, the broadcasting tower had to be erected at a minimum of 150 feet height. At the beginning of the big flat TV

there was not proper coverage for the area as there was only one directional broadcasting antenna. This resulted in only a limited number of consumers receiving TV. Therefore, occasionally someone had to take the risk of climbing this tower and turning the antenna in a different direction so another area could be receiving TV. It took some enthusiasm to brave this 150-foot climb for the sake of better reception for themselves. This so much water over the bridge today as we are now covering an area of 180°."

I might add, too, gentlemen, this is part of the country in Montana that you read about, which has the terrific blizzards in the wintertime, where people are snowed in for 3, 4, or 5 days or a week at a time. This is their only method of recreation, practically their only means of communication with the outside world.

The next picture is Hamilton, Mont. This is a town of a little bit more than average size for the boosters. I believe that is marked 600 sets. This booster repeats a signal which comes in over a range of mountains something similar to the one that you see in the background of the picture.

The second picture is a picture of the equipment inside of the booster shack. I should not call it a shack, because it is a nicely built concrete-block house. This equipment is almost standard for most of the equipment used in the booster stations in Montana. It happens to be manufactured by a Canadian concern. There are four pieces of equipment that are used for each channel that is picked up, converted, and rebroadcast. These pieces of equipment, I might say, are approximately 18 inches long by 4 inches wide by 13 inches deep.

The next picture is the town of Gardiner, Mont. Gardiner is the town that lies at the north entrance of the Yellowstone Park. It lies in a sort of bowl shape, entirely surrounded by mountains, with the Yellowstone River running through the valley floor. Gardiner is served by two signals. One signal comes in over the top of Yellowstone Park and we believe the signal has been reflected two or three different times. It comes from KID, Idaho Falls. The other signal is from KXLF in Butte. Gardiner has 135 sets.

In the picture of the town of Gardiner, you will notice about the center of the picture on the left-hand edge there is a mark showing the approximate location of the booster shack.

The next picture is at the booster shack looking down toward the town of Gardiner, which is hidden in the bottom of the river valley. It is not even visible in the picture.

The last picture is that of the Lennep booster, showing the direction it rebroadcasts toward the Musselshell Valley. This covers 25 farm families that live up through this area, and the distance is approximately 18 miles.

I would like to add at this time a little bit about our Tri-State Repeater Association. This association is comprised of these 108 Montana TV clubs who joined together in an effort to get legalized VHF booster operation. We believe that only through legalized VHF booster operations can our area have television. In fact, it has been estimated that 90 percent of the booster stations in Montana would be forced to go black if we did not have this VHF booster operation.

We might also add to the question this morning to Senator McGee as to whether Wyoming licensed booster stations in Wyoming.

Montana is one of the States that does have a license law for the VHF boosters. If I might submit this for the record, I have a copy of that license in this folder here. I would like to be permitted to submit all of this for the file.

Mr. AVERY. Without objection, it will be received for the committee's files. When the chairman returns, he will examine it and see whether it is appropriate for inclusion in the record.

Mr. BEAMER. I think in this statement that I have that has been submitted that almost all of the points have been touched on with the exception of probably one or two more, and with your permission, I will try to make these as brief as possible, and then close.

One of our big problems in the State, and in the West, has been the fact we have never been heretofore too well heard.

Our problems have not had too great an area. There has been several pieces of misinformation spread about us. In one particular case I would like to show you this map [showing]. This is something similar to a map that appeared on another pamphlet a short time ago that had a different type of suggestion from what we believe worthy, and on this map they show just the northwestern section of the United States. After doing a lot of looking around and talking to people, I believe this is more truly a coverage picture [indicating] of the booster operations in western United States.

You will notice there are areas showing up in the East. Just recently I heard of a booster that had started up in West Lebanon, N.H. I spoke to a Mr. Crawford who is operating the booster in West Lebanon here the other night to ascertain what his reasons were for putting this booster in, and if it was creating any interference with other existing television media, and he assured me it was not.

The idea of putting in this booster was merely to fill in an area that a UHF translator was unable to reach due to a high hill that lay between the translator and the town being served.

There have been several of these things show up.

We have not, as I say——

Mr. YOUNGER. May I interrupt? You say several things have shown up. Who produced them?

Mr. BEAMER. In some instances, as recorded in the Senate hearings, CATV systems seem to be the basis of these things. I am thinking more now of what Senator McGee spoke of this morning. I believe his testimony is based on the hearings that he held in Casper, Wyo., last year, where, as he put it in an earlier statement, things happened that Madison Avenue had not even though of in their Saturday night late show.

Then there were some questions raised this morning by Mr. Avery that I would like to answer just briefly.

Mr. Avery was concerned about the effect, as he put it, of a booster coming into the area of a broadcasting station. In Montana we have had a series of meetings among the officials of our organization. During February and March I held a series of five meetings in Montana to discuss this, and the same problems were discussed with the clubs themselves.

And it was their opinion we should examine this business of having a booster in the same areas as a broadcasting station, especially where it might conceivably cause economic impact to the station. And we have examined this also in executive committee sessions and we have

decided that a nonduplication of signals by the boosters, or in other words, giving exclusivity to the television station for the programs they are producing is very, very necessary, and we are prepared to go along with any reasonable suggestion, and we hope to meet with television station owners and work out a program that will be in the public interest rather than a convenience for us.

We firmly believe this is the only acceptable way to do this thing.

I think it might be well to put this into—we should explain our need for a local television station. As I understand it, when the rules and regulations are written for the booster stations, one of the features of this will be that we will be limited to picking up a signal off the air. We will not be able to use the services of a microwave to bring in a signal from 400 or 500 or 600 miles distance. And with this thought in mind—and we support this idea of not using the microwave—we need these local stations in order to have a signal to rebroadcast.

Anytime one of these local stations goes dark, from whatever the reason may be, then we are dead as far as a picture is concerned to reproduced on our booster station. Our concern probably for the mother stations that we rebroadcast is paramount because we are entirely and utterly dependent upon them for a signal to rebroadcast.

One other particular thing here that came up: In the conversations that I have had trying to look forward into the future as to the reaction of the various television stations on whether or not they would give consent to the operation of these boosters, I have yet to find any station who did not say that as soon as you are legalized and our position would not be jeopardized by so doing, we will be glad to give you booster people a permit to operate with a signal from our station.

I think that is a very important clause in there, and I think the booster people all recognize they must have this consent of the stations. In another one of those sheets in this book here [indicating] when the State of Montana licensed the boosters and placed them under the control of the Montana Railroad and Public Service Commission, what to do in the matter of licensing these boosters. They had no engineering members on the commission, none they felt were competent to handle this. At a meeting in March which lasted for some several hours last year, we undertook to make several suggestions, and in this book here I have a copy of those suggestions. One of them says, if I may quote: "The originating station must authorize repeating of their signals."

One of the other features of S. 1886 that we are supporting today would allow the Federal Communications Commission to reduce the operator requirement for the operation of these boosters.

This we believe is a very necessary thing and these are all nonprofit operations serving small areas without the necessary money to finance them. A paid full-time operator is completely out of the question. It is going to come to the point where they are only going to have the people in the area themselves to qualify for this operator's permit. If the technical qualifications are too high, then these areas will be barred from having any television.

It is these real small areas we believe need television the very most.

The chairman this morning spoke of zoning the country for boosters. This is something that was tried in radio quite a number of years ago, I am told, and has now been abandoned. At the present time I see no reason for zoning. The boosters being licensed on a noninterfering

basis should be enough to stop any interference that might arise from the boosters coming into an area where they otherwise would create interference. It might be well to note too this has been our experience, that any place there are two television signals available to the rooftop antenna of a house in the community, a booster station is very apt to not be built. The reason for this is the community does not see any reason for putting its money forth into an operation when about all that it does is duplicate signals already in the area.

I would like to say in concluding my statement here today that I am of the opinion that the people that are now barred from building VHF boosters in certain areas in the West should be allowed that privilege.

I think Senator McGee covered that point very well this morning when he classified these as two different people, the first one being the person that had built previously to getting a license and the second part, the person who had waited to be properly licensed before they entered into the construction of a booster. I think he covered that point very thoroughly, and I see no need to pursue it any further. With that, I would like to thank you for your time.

Mr. YOUNGER. Why do the booster stations send out on a different channel that on which they receive? You mentioned about receiving on channel 4 and sending out on channel 11. Why is that?

Mr. BEAMER. The Federal Communications Commission has stated that there is danger of self-oscillation in a nonchannel type of operation. We have a number of areas in western Montana where they have solved this business of a signal from the broadcasting antenna coming back into the receiving antenna by putting a mountain in between the broadcasting antenna and receiving antenna.

We are willing to go along. We do not wish to create any hazard to any form of aircraft, or any other radio communication, and if their engineers say this is a hazard, we think we should be willing to go along with that and change our style of operation to a converted operation, an operation where we receive on one channel and rebroadcast on a different channel.

Mr. YOUNGER. You have five stations in Montana, according to this chart.

Mr. BEAMER. There are 108, sir.

Mr. YOUNGER. I am talking about regular broadcasting stations.

Mr. BEAMER. There is one missing there. It is Helena, Mont., that came back on the air recently, and that would give us six.

Mr. YOUNGER. Six in the State?

Mr. BEAMER. Yes, sir. There are eight all told.

Mr. YOUNGER. How many channels do they use?

Mr. BEAMER. Eight channels.

Mr. YOUNGER. They are all on a different channel?

Mr. BEAMER. Yes.

Billings has two stations, Great Falls has two stations, Helena, one station, Duke, one station, Missoula, one station, and Glendive, one station, and that is all the stations we have in Montana.

It might be interesting to note Montana has been allocated 16 channels for stations throughout the State, and of these, only 8 have been built.

Mr. YOUNGER. I raise that point solely to wonder why if a booster station sends out on a different channel than that received, you might

not interfere with the station which you are receiving from, yet you might very well interfere with one of the other stations that happens to be broadcasting on channel 11.

Mr. BEAMER. I might answer that by saying this: The distances in Montana are so vast.

Mr. YOUNGER. I know.

Mr. BEAMER. And the signal length so short. As of now, most of our equipment in Montana is one-third watt, or less in output. This signal will only send out possibly 40 to 45 miles, or 50 miles under good conditions.

With this thought in mind——

The CHAIRMAN. I have tried to indicate to you to start with we are not going to have unlimited time this afternoon. I think it would have been a lot better if you had read your statement. I hope you will try to get your remarks in. You have been going 40 minutes now.

Mr. BEAMER. Mr. Chairman, if it is the pleasure of the committee, I will withdraw.

The CHAIRMAN. We have all these other witnesses. I tried to indicate this morning since there was no opposition, we do not want to stay here all day and night.

Mr. BEAMER. If it is the pleasure of the committee, I will withdraw.

The CHAIRMAN. Mr. Younger was asking some questions. He may finish his questions.

Do you have any questions, Mr. Moss?

Mr. MOSS. No.

The CHAIRMAN. Do you, Mr. Avery?

Mr. AVERY. No. Thank you, Mr. Beamer, for your statement.

The CHAIRMAN. Thank you very much. We appreciate the problems you have out there, and we are going to try to do something about it.

Mr. AVERY. If I observe correctly, Mr. Beamer came at the expense of the various people using this service and not representing any special interest group. I think that is very commendable.

(Mr. Beamer's prepared statement follows:)

STATEMENT OF JAMES BEAMER, LIVINGSTON, MONT., VICE PRESIDENT, NATIONAL TELEVISION REPEATER ASSOCIATION, DENVER; SECRETARY, TRI-STATE TV REPEATER ASSOCIATION, MONTANA, IDAHO, WYOMING

My name is James Beamer. I am an employee of the Northern Pacific Railroad. I receive my expenses for this 2,400-mile trip from Montana to Washington by contributions from Montana citizens who are anxious to have free TV in our State, who have formed the Tri-State TV Repeater Association, of which I am secretary. I receive no salary. I am using my vacation from the Northern Pacific Railroad in order to be here.

I represent 108 VHF booster clubs located in Montana, as well as clubs in the States of Idaho and Wyoming through the Tri-State TV Repeater Association. In addition, I am vice president of the National TV Repeater Association representing clubs in 10 States. In Montana we estimate 47,762 TV sets, representing 200,000 TV viewers, as the number served by our VHF booster repeating devices. Included in this figure is an underestimated 25,000 TV set owners who would not have any type of TV service if the VHF repeating devices are abandoned.

The Tri-State TV Repeater Association was organized January 25, 1959, at a meeting in the capital city of Helena, Mont. It was attended by 93 people representing their own area and by proxy covering almost the entire area of the State, who were in turn, interested in free TV. Since then, the 108 clubs, that operate in the State, have affiliated with this organization.

MONTANA LAWMAKERS ACT

The State of Montana in its legislative body assembled in January of 1959, recognized the need for VHF boosters, and after duly considering the impact of the loss of the booster upon the Montana communities, passed a bill which was subsequently signed by the Governor of Montana and, I might add, by quite an overwhelming majority of votes in both the senate and house of representatives. This gave the boosters in Montana the benefit of regulatory procedures by the Montana Public Service Commission. With your permission, I would like to submit a copy of Montana S. 97 for the record.

A number of other Western States took action in a comparable manner. The State of Colorado placed its boosters under the authority of a broadcasting commission upon executive order of the then-Governor of Colorado, the Honorable Edwin C. Johnson. The States of Navada and Utah, upon proper legislative action, established the authority of the school districts, the county commissioners, and other civic bodies to issue bonds and assume mill levies upon taxable property for the erection and maintenance of VHF boosters in the areas where the vote of the people unheld the installation. The action taken by the State of Utah has been upheld by the supreme court for that State.

These then, are the answers of some of the Western States in the matter of VHF television boosters. That the impact and the feasible solution for the bringing of television to these rural areas has been noticed by these States, we hope, will give you cause for thought and consideration upon the manifold benefits that will be given to our loyal citizens in the West upon the enactment of these bills.

All of our repeating devices have been erected without profit to anyone except the manufacturer of such equipment. The funds totaling, from a low of about $600 for each repeating device, have been raised by small contributions from $1 to $100 by the residents of our State.

Engineering and technical advice, for the most part, have been provided on a gratis basis by the suppliers of subject equipment within our State.

With proper licensing, competent technical men will be allowed to work on our devices to the benefit of the viewing public.

It has been suggested by Commissioner Robert E. Lee of the FCC and we agree, that licensed competent technical men would be licensed by our State group to inspect and improve the device in areas where needed. This in effect would tend to minimize interference between boosters, assure everyone of a properly operated equipment and upgrade the signal to the public. This can be done, however, by allowing the FCC to license the booster we are asking you to do today. As it now stands, all licensed personnel are barred from working on boosters under penalty of losing their license.

The total cost invested in repeating devices, I would estimate, is approximately $200,000. The 25,000 sets, who would not receive TV in any other manner—except through the VHF repeating devices—have been expensive to install and cost an average of perhaps $400 each. The 25,000 sets represent a total investment of approximately $10 million.

Of the 108 booster clubs in Montana operating 144 repeating devices, all but 15 of these operate in towns of less than 2,000 people. A large percentage of these remaining 93 are in villages of less than 500 people, and some serve only rural areas. They are designed and constructed to serve all the people in their area—rich and poor alike—with a free TV signal. In addition, to the 25,000 rural sets with but a single service, the VHF repeating devices also bring a second or third signal to the people of the cities.

Those that I am principally concerned about are these people with but a single service—the people in the small towns, the isolated sheepman, cattleman or farmer—some without telephones—who have been accustomed to TV and depend on it for weather conditions, entertainment, and education in the long winter months in our State. VHF booster repeating devices are the only method by which these people can receive television. The legislation being considered here today will determine whether or not these people will continue to have TV. Failure to give proper consideration will mean these 25,000 TV sets will go black because there is no other feasible method, financially, by which these people may obtain a TV signal.

DO SMALL TOWN CITIZENS HAVE RIGHTS?

It could be said this is not a large number of people when compared to the rest of these United States or even one large eastern city. Even all the people that would be affected by this blackout in the Western United States does not make an

impressive figure. Yet, would it be fair to deprive them of the wonders of television? I believe, and the Constitution of the United States upholds me, that the individual is important, that he has been given the rare privilege to build for himself a better life if it can be done without interfering with his neighbor. This, then, is one of the times when the Congress is being asked to again confirm this point of view.

For a complete record of the feelings and thoughts of people here in the West who would like to appear to testify before this committee upon the importance of the boosters which have brought television into their lives, I would recommend volume 2 of the Senate Subcommittee on Interstate and Foreign Commerce field hearings held in Montana, Idaho, Utah, Colorado, and Wyoming last year. At this time the views of the people in these States had ample opportunity to be presented and recorded. These people who testified are people who are unable to be present here today and have instead elected us who do appear as their representatives. We feel that a review of this testimony cannot help but stress the importance and to make known how the people in our States think and believe. As a second best measure, and by second best I mean instead of your committee holding hearings on the spot in our Western States, we sincerely commend the record of these hearings to your attention. The individual stories that you find here all contain a great deal of similarity. This has been a struggle of communities on the whole to obtain television for themselves and their neighbors based upon the proposition that no profit should accrue to anyone and that the operations be kept as least costly as possible. It might be also added that the signals produced by these boosters are free to anyone with a home receiver. It is only the moral obligation of the residents of the area who can afford to help defray the costs that are asked to help. The old people subsisting on inadequate social security, the newly widowed woman with the five children, these people are not expected or asked to help support the booster station. This we claim, and with ample justification, is free television and the United States at its finest. The Biblical commandment of "love they neighbor" is best exemplified in the operations of booster television clubs. There has never been a proven case of interference from the boosters to any other licensed form of radio to my knowledge.

A thousand times representatives of the VHF manufacturing companies, representatives of the pay cable systems and representatives of the Federal Communications Commission have said their "may" be interference.

There has never been a proven case.

This has been attested to by letters from the Fourth Regional District FAA Office and from various radar defense installations in Montana. While minor interference may be possible between boosters, it could be easily remedied with very little effort and with very minor regulations.

PROBLEMS ARE COMPLEX

The problems of television in Montana are of complex nature. The first problem is to find a television signal that we can use. In our sparsely populated areas—many of them at almost impossible distances from television stations—the only available TV signal is found high on the tops of mountains near these communities. To bring these signals down off of these high mountains to the people in the valleys below constitutes the greatest problem of all.

It has been solved by the use of VHF boosters for the following reasons:

A. This is the most economical method of disseminating this signal to the people. The three times greater initial cost of UHF translators and the $50 conversion cost for each individual set to receive this UHF signal would cost the people of Montana an estimated $8 million to make this change.

B. In large numbers of areas the use of a UHF signal with its greater number of limitations would black-out from one-fourth to one-half of the broadcast area now being covered by a VHF booster. This is indeed interesting when the power output of the UHF and VHF boosters are considered. The UHF translator is licensed to operate at 10 watt and 100 watt of power output while the VHF booster on the whole, operates at a maximum of 1 watt of power output, and 90 percent of the boosters in Montana operate at one-third watt power output and less.

C. The higher power output of the UHF tends to make them extremely critical in maintenance. The lack of skilled technicians in the greater number of areas in Montana would doom the people in these areas to receiving a very inferior grade of television picture. This, coupled with the higher maintenance and power costs together with the initial costs of the equip-

ment, would mean that an estimated 75 percent of the Montana boosters would go dark and so remain without the use of a low cost VHF booster.

The VHF booster, with its less critical equipment and lower operating costs, have been the solution the people have subscribed to. It would not be fair to ask these people, who have contributed from $10 to $100 apiece, plus an immense amount of time and labor, to construct these VHF boosters, to say in effect, your work is for naught: Tear down what you have built. Go forth and raise three times the money you have already expended and charge your people the $50 to convert their sets. This must be done even though none of the charges of interference have ever proven to be more than rumors.

A number of opponents of H.R. 11040 and S. 1886 will state that the UHF translator is, in reality, the only feasible method of bringing television to these wide, vast areas with its thin population and rugged terrain. These examples might, perhaps, give you a better insight into our protest that this is not necessarily so.

Let us first examine terrain problems. The two UHF translator stations located 40 miles northeast of Shelby, Mont., that were designed to serve Shelby, are a vivid example of this. These translators give a beautiful picture and signal for distances up to 100 miles, both east and west of their location. Unfortunately, the flat characteristics of the UHF signal ordains that these signals are found only in line of sight with these translators. This means those people living in the narrow river valley of the Marias River are sheltered by the high hills on either side of the valley from receiving this signal.

USE VHF TO MAKE UHF WORK

The people in the town of Shelby found themselves in the sad and peculiar predicament of expending upward of $25,000 for a signal they could not receive without erecting individual antenna masts in excess of 100 feet in height. In valleys of free blowing gales, these masts were not practical. Their solution, then, was to install two VHF boosters to receive and reconvert the signals of these UHF translators in order that the people of Shelby might have a usable television signal. Shelby is a pay cable town of 3,500 people.

Salmon, Idaho, with a UHF translator on channel 70 presents another difficulty—one of maintenance. The maintenance engineer for this translator lives in Spokane, Wash., a distance of some 400 miles by road. His service calls on this translator occur at 6-month intervals. In case of operational difficulties the translator must be shut down for periods of from 3 days to 3 weeks, and is closer to the latter, while this engineer adjusts his schedule in order to come to Salmon to correct the troubles. Competent servicemen on the very critical UHF translators are few and far between. Servicemen not too well acquainted with the critical adjustments of these translators usually make a bad signal even worse with their manipulations. The expense of bringing in this technician from such a long distance is, to say the least, an enormous expense upon the people of Salmon. It further means that the slight adjustments necessary to keep a good grade of signal are not made except at the regular inspection period. The people of Salmon, even though they do not appreciate it, have become accustomed to a signal that starts out good at the beginning of the 6-month period and then degrades until total shutdown is necessary or the next semiannual inspection is made.

Another example is Trinidad, Colo., where the Sunflower Valley Television Group spent $25,000, and still owe $6,000 in engineering fees, found out that UHF translators would not perform because of limited coverage, ghosted signals, and poor reception. These people, after expending this vast amount of money, then turned to the VHF booster for their solution at a cost of less than one-eighth of the amount spent on the UHF translator, or to be exact, $3,858. This provided them with an additional signal they did not have with the UHG translator. Now they provide themselves and their neighbors with two acceptable VHF booster television signals at the home receiver.

At Lemhi, Idaho, where we stopped briefly while showing Federal Communication Commissioner Robert Lee various VHF boosters and UHF translator sites while he was in Montana the first part of May, we were informed by Warner Spencer, the operator of the booster station, that an actual test had been conducted using a 10-watt UHF translator as compared with the booster whose power output is one-third watt, that he uses at present. It was found by actual measurement, this UHF translator cut the coverage area approximately in half. This is even more startling when the translator site is approximately 900 feet up on a mountain above the Lemhi River Valley floor, where the people

live, and good line of sight should be had in all directions. I might add, this was one of the finest booster pictures found on a home receiver that we have yet encountered.

In the hearings before the Committee on Interstate and Foreign Commerce, U.S. Senate, 86th Congress, on page 4854, a Mr. Martin Essex, of Akron, Ohio, testifies to the sensitiveness and the troubles encountered in tuning in a UHF converter to receive a picture from the UHF television station in Akron. This is what Mr. Essex had to say:

"Perhaps my experience could illustrate the problems confronting a potential viewer. Until 5 years ago I was a resident of the Cleveland area and accustomed to the convenience of a turn of the knob to get any of the three Cleveland very high frequency stations and to getting good reception. Upon moving to Akron, due to the nature of my work as superintendent of schools, I felt it incumbent to purchase an adaptor in order to relate myself to the community. After several service calls I was informed that there was little that could be done to improve the reception or to eliminate the necessity of remembering to turn on the adaptor, wait for a prolonged warmup, make more than the normal tuning adjustments as it fades in and out, and then to be sure to turn the adaptor off so that it would not be burned out by the time one wanted to get UHF again. You are not likely to want to use it again; but if you should, you wouldn't want your tubes burned out by this adaptor."

This same problem was evident at Salmon, Idaho, where we viewed the operation of a UHF translator while on this same inspection trip.

UHF SIGNALS NOT GOOD

In the same volume the Federal Communications Commission in April of 1959, submitted a document to the Senate Committee on Interstate and Foreign Commerce. It detailed some of the disadvantages the Commission had observed with the UHF signal:

Page 4595: "Today's UHF receivers are significantly inferior to VHF receivers in noise level, in ease of tuning, and in the longevity of some components. These inadequacies in UHF tuners serve to reduce the quality and range of UHF signals, and are a significant factor in the difficulties encountered by UHF stations in building and retaining audiences."

Page 4596: "Propagationwide, UHF stations have a shorter service range than VHF stations, and they also suffer from a greater variability in quality of service within their service range, owing to the effects of uneven terrain, tall buildings, and changing atmospheric and foliage conditions. These differences are most apparent to the public in areas where both VHF and UHF stations are in operation and a direct comparison of the two is made."

Page 4597: "This may be illustrated in the efforts made to reduce the noise level of UHF tuners. The noise figure for present UHF tuners averages 12.8 to 13.8 decibels; the comparable figure for VHF tuners is 6.5 to 8.5 decibels. The noise level could be reduced in a UHF receiver and set performance improved by incorporation of a radio frequency amplifier. Several tubes have been engineered for this purpose, including the ceramic tube of GE, the pencil tube of RCA, and a German Pc 86 tube. According to the manufacturers, the best of these devices would reduce the noise level of UHF tuners to the range of 8 to 10 decibels.

"It was estimated by the manufacturers, however, that the cost to the public for a VHF–UHF receiver so equipped would average $35 to $40 more than the price of a VHF-only receiver, compared to the present differential of $25. This estimate was premised on the most favorable conditions, assuming a nationwide, mass market for UHF receivers. The set manufacturers maintained that the average consumer would not note a reduction in noise level of only 3 to 4 decibels (as compared to the better UHF receivers) and that, in any event, the cost of achieving this improvement was too high.

"Some manufacturers were optimistic that a major improvement in UHF receivers may be achieved by the use of transistors, parametric amplifiers, or other semiconductors. The parametric amplifier, which is currently produced for use in nonbroadcast communications, is theoretically capable of reducing the noise level in receivers to zero. Before the parametric amplifier is ready to be applied in commercial television sets, technical changes are required. While certain manufacturers were optimistic that these technical difficulties could be overcome, they estimated the production timetable as at least 3 to 5 years hence.

"While the potential exists for substantial improvements in UHF receiver design, such improvements alone would not equate UHF with VHF service. One of the basic characteristics of radio propagation is that the length of the

radio wave decreases as we move upward in the spectrum. This places a greater burden on the receiving antenna to capture the shorter wave. With present-day UHF antennas and transmission lines, the signal delivered ultimately to the UHF receiver may be 10 to 20 decibels less than in the case of VHF transmission. Moreover, UHF receiving antennas are somewhat more directive than VHF antennas. Thus, in order to obtain multiple services from UHF transmitters located in different directions, the UHF set owner in a fringe area is more likely to require a rotary-equipped antenna which would double the cost of the antenna installation. Although the antenna is an important link in the development of a UHF system which would more nearly equate with VHF coverage, there are no major improvements in UHF antenna design in prospect."

These are standard television stations they are talking about. Small 10 to 100 watt UHF translators signal strength levels received are much lower. As a result, these factors are noticed much more rapidly on the home receiver in a poorer picture.

Page 4598: "That UHF is free from atmospheric interference and manmade interference; and that according to TASO findings in some areas of flat terrain the extent and quality of UHF service equals that of VHF.

"The Commission is concerned, for example, at the inherent variability of UHF service—the shadowing which results from variable terrain, tall buildings, wooded areas, and atmospheric changes. In some extremely flat, treeless areas within line of sight from the transmitters, UHF service may be comparable with VHF. However, if the terrain is moderately rolling or the area contains even moderate vegetation, rocks, houses, or other obstructing, scattering, or absorbing objects, the UHF field strength may be substantially lower than UHF for equal ERP. This can result in a deterioration of service to the public in the area, unless adequately compensated for in the UHF transmission system.

"Aside from the possible loss or deterioration of service to homes within the normal service areas of UHF stations will deprive rural areas of service, These scattered rural families are now generally served by VHF stations located in metropolitan centers. Such stations in most cases cover a radius of 60 to 70 miles or more. For the foreseeable future it must be assumed that the coverage area of the typical UHF station would be significantly less than of a VHF station."

In conclusion, we would not assert that all of the UHF translator stations have these deficiencies. Instead we know there are a number that are giving a fine service to peoples in selected areas. The point we are trying to establish is that there are areas where a UHF translator is technically warranted and financially feasible. There are other areas where only the VHF booster can be used. It is our contention that the Congress should pass this bill so as to allow the Federal Communication Commission the discretion in approving a type of service tailored to the needs of the community and designed to give the best possible televislon reception to the public.

DUPLICATION OF SIGNALS

There have been on several different occasions, the latest being questions introduced in the Senate, May 18, on the posture ot the booster stations in regard to duplication of signals in areas of television stations throughout the West. We would state that we are in favor of this program, and would willingly accept any of the duplication programs that is imposed upon a CATV system when so requested by a television station. We have, as early as March 1959, been discussing this very same point within our Tri-State TV Repeater Association. We are fully and firmly agreed this is both technically feasible and morally proper that we should do so.

This problem has also been discussed at some great lengths in a series of five meetings held in Montana during late January, February, and early March, with representatives of the clubs in Montana. Further, it has been the subject of discussion of several meetings of the executive committee of the association. We have made overtures to the television stations to meet with us and finalize a duplication program to be placed into effect. It is not a question of whether we can or cannot do it, it is rather a question of how best to do it in the public interest, convenience, and necessity.

That it can be done by use of a time-clock device to switch programing from a distant station to a local station when duplication occurs has already been investigated by the Laramie, Wyo., TV Club. The only thing that has prevented this club from installing such a device was that the CATV system in Laramie

deliberately installed additional adjacent channel booster equipment, and thus to all practical purposes wrecked the Laramie TV Club signals to further their own interests. We regret deeply that the Laramie TV Club was not allowed to complete its duplication program so we could hold this up for you to examine as proof of our statements that this nonduplication program can be done.

A regulated booster industry by the Federal Communications Commission, such as we are asking you for by passage of S. 1886 and H.R. 11040, would have prevented this. The residents of Laramie who cannot afford a CATV connection, the residents in the fringe area of Laramie where no CATV connection is available, and the rural residents around Laramie would now be getting a choice of three channels of television, two from Denver stations on the booster and one direct from a television station in Cheyenne, with the Cheyenne station being given exclusivity of the programs by the installation of the time clock as contemplated. As it now stands, these people are dependent upon the Cheyenne television station for their only signal while the more fortunate people in the city of Laramie have multiple-channel television on its CATV system.

SUMMARY

The conclusion that we draw is:

1. We are cognizant of the duplication problem.
2. That we are working to find a solution in the public interest, convenience, and necessity.
3. We submit that we are agreeable to imposing a nonduplication program upon ourselves.

In the year and one-half in which this organization has been in existence, we have had the opportunity to demonstrate to two members of the Federal Communications Commission exactly what we are trying to do here in the West. It is safe to say that both of these Commissioners, after viewing on-the-spot operations, have been impressed to some extent by the sincerity of the people in these areas, and even more impressed by the community efforts to make television available to themselves. In view of this, the Federal Communications Commission, last January 11, called for comments upon proposed rules on the VHF boosters. It will suffice to say that these rules were opposed by people interested in UHF translators and CATV systems.

While on the whole the VHF booster people were agreeable to these regulations and only pointed out certain areas of the rules they felt would stand further discussion and field examination from the standpoint of practicablity. The only thing that stands in the road of a completion of a set of rules applicable to the boosters is that portion of the Federal Communications Act of 1934, specifically paragraphs 318 and 319, upon which amendments are being considered today. These amendments would allow the Commission to license and regulate with prescribed rules the operation of the existing VHF boosters upon a noninterference basis.

OTHER STEPS CONSIDERED

Several other steps toward legalizing the position of the VHF boosters have been considered. These considerations, exclude any contemplations of changes in the existing Communications Act. Unfortunately, all of the proposed methods of permit operation of the VHF boosters contain flaws which at a later date could very possibly rise up and create unfavorable situations. It is our contention that all the VHF boosters must therefore be licensed in accordance with the time proven and tried methods in order to avoid any future troubles. To do this then, it will be necessary for the Congress to amend the Communications Act to allow the FCC to license and govern the existing VHF boosters. The Senate after long hearings in Washington and in the field unanimously approved S. 1886.

Before concluding my statement there is one other matter I would like to draw to your attention. While it is not under consideration today, still it is of a necessity we would like to digress for a moment.

It may seem strange at first thought that the VHF booster people support arguments and contend that regulation for CATV systems are necessary. Perhaps, this will not be quite so strange with proper explanation.

The VHF booster stations are dependent upon local television stations for a signal to repeat. This is a condition imposed upon the UHF translator now and the boosters when they are licensed by the FCC and which we support as being proper. In effect, the VHF boosters merely are a fill-in device within the area of a broadcasting station. We cannot, nor do we wish to bring the signal from great distance into the area of our local TV stations by the microwave system.

Without this local television station to rebroadcast our VHF boosters are dead. Let me reaccount a sad incident that occurred last November. The transmitter site of KXLF–TV in Butte, Mont., was destroyed by fire. While a new transmitter was being installed there were 14 VHF booster stations that were dark, and the people in the areas that receive their signal from these boosters were without television. The large number of people in the Gallatin Valley, the Beaverhead Valley, and the Deer Lodge Valley who get direct reception this television station and can only receive this one signal also were without television. Fortunately, indeed, after some 3 weeks this station again resumed operation. In this respect, these people were much more fortunate than those people in Kalispell, Mont., where the television station was shut down and dismantled and where now only the people in the Kalispell city area receive television from a CATV system.

In Casper, Wyo., the people lost one of the two television stations established there. This same thing has happened to the people in Harrisburg, W. Va. It has been testified to by the former owners of these stations that all three of these stations were shut down by economic impact of CATV systems. A number of other stations in our western area are already threatened by invasion of CATV systems. With the proposition in mind predicted upon the ideas of the need for our local television stations from which we reproduce a television signal it is little wonder then, that we proclaim free television is rapidly being destroyed in our western areas, and that the extension of free television through our boosters is likewise disappearing.

For a system of free telecasting to prosper and grow, all forms of television repeating must be regulated and controlled. Unfair competition which these small television stations cannot overcome or which places no adequate means at their disposal to compete, can only lead to disruption of the entire television industry in the future. We foresee the establishment of a pay TV system being formed in the United States. We contend, especially in Montana, that we would be far better off with the 16 television stations which have been allocated by the FCC in operation than the 8 that are now in existence, and of which 2 are being threatened by CATV systems in their area.

I would like to draw your attention to two bills introduced by the Honorable Mr. King of Utah, which are numbered H.R. 11040 and as an identical bill to S. 1886, and as such are both being considered here today. The other bill introduced by the Honorable Mr. King of Utah is H.R. 11401 which is an identical bill to S. 2653 which was returned to the committee in the Senate, May 18, by a margin of one vote. We would have appreciated very much being able to testify upon H.R. 11041 here today.

PAY-CABLE DESTROYING FREE TV

In our sparsely settled areas of the west, where television stations are not an assured money making proposition, the impact of the CATV systems, with their common carrier microwave facilities, are rapidly destroying free television. With the loss of free television in any area the television sets in rural America are darkened and these people, who are more dependent upon television for entertainment and information than any of the city people, become worse than second-class citizens. They become shut off from one of the greatest media for dissemination of news and information ever created. Even the Federal Communications Commission in their comments to the House on H.R. 11041, as it was introduced by Senator Monroney in the Senate and is spread upon the Congressional Record on May 17, 1960 recommends:

1. Amend section 325(a) of the Communications Act so as to make it applicable to CATV systems.
2. Require that upon request by any local TV stations, a CATV system shall carry the programs broadcast by the local station.
3. Authorize the Commission, by rule or order, to prescribe standards to assure that the reception of local programs via a CATV system shall be reasonably comparable in technical quality to other programs redistributed by the CATV.
4. Authorize the Commission to prescribe appropriate rules and regulation to prevent the duplication of local station programs by a CATV system.

These conclusions, as stated by the Federal Communications Commission, we uphold and support vigorously. H.R. 11041 does not quite cover all of these points. It only contains Nos. 2, 3, and 4. The consent of the television station is not required. We commend to your committee that full and close examination be made of both the Federal Communications Commission and those of H.R. 11041. Especially, we recommend part 4 as being in the public interest, convenience, and necessity.

We, therefore, earnestly solicit the aid of this committee and of the Members of the Congress in obtaining what we believe will be the most equitable solution of television problems in our area by passing at this session of Congress, S. 1886.

The CHAIRMAN. Mr. Warner Spencer. Is Mr. Spencer in the room?

[No response.]

The CHAIRMAN. Mr. Kendrick Harward.

Mr. Harward is president of the Utah TV Repeater Association.

STATEMENT OF KENDRICK HARWARD, PRESIDENT, UTAH TV REPEATER ASSOCIATION

Mr. HARWARD. I represent the Utah Repeater Association as their president here today.

First, let me say we appreciate the invitation or the opportunity we have of appearing here. We extend congratulations and compliments to the committee on the conduct of this hearing and we express appreciation to the Federal Communications Commission for the apparent interest and action they are taking in the matter which has been so vital to us through the past few years.

It is not my intention to belabor the point, either technically or generally, because that has been pretty well discussed and covered.

I would like to say we want to be on record as favoring regulation through the Federal Communications Commission since we in Utah are pretty generally covered by TV boosters. Twenty-two of our 29 counties, as will be shown on the map in the last page of the station, are covered with TV boosters. There is considerable interest. We have been plagued with all the problems and pains that have been associated with this program as it has grown. We are asked now to spread over the State the educational channel that is put out by the University of Utah. We hope to be able to do this.

We have tested the case from many angles, by bond elections and other interests, and find all our people are vitally concerned and interested in the promulgation of this type of entertainment media and news media.

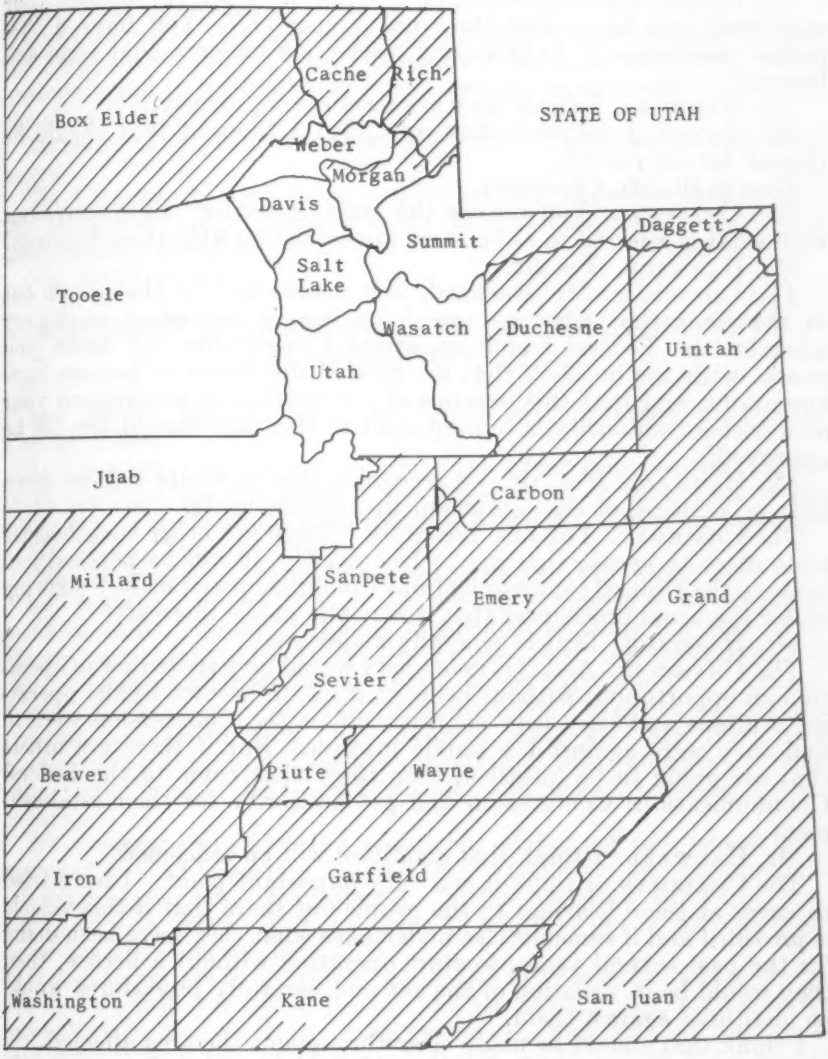
So we compliment the committee on its action. We appreciate the opportunity of appearing here today and we recommend that the bill be adopted as it is written.

The CHAIRMAN. I observe that together with your statement, which will be included in toto in the record, that you have a map showing certain information with reference to that area of Utah. I am not sure we can include that in the record. It may be that it can be reproduced. Probably it can. Would you like for it to go in the record?

Mr. HARWARD. Yes; I would.

The CHAIRMAN. In the event it can be reproduced, all right.

(The material referred to follows:)


STATE OF UTAH
Box Elder
Cache
Rich
Weber
Morgan
Davis
Summit
Daggett
Tooele
Salt Lake
Wasatch
Duchesne
Uintah
Utah
Juab
Carbon
Millard
Sanpete
Emery
Grand
Sevier
Beaver
Piute
Wayne
Iron
Garfield
Washington
Kane
San Juan
Counties in which Television Repeaters are used.

The CHAIRMAN. Mr. Moss, do you have any questions?

Mr. MOSS. No, I think the statement is self-explanatory.

The CHAIRMAN. Mr. Younger?

Mr. YOUNGER. No, sir.

The CHAIRMAN. Mr. Avery?

Mr. AVERY. Just a question on definition. I see throughout your statement you have used the word "repeater." You have a "repeater association." Is there any distinction between that term and booster?

Mr. HARWARD. I think they are used synonymously.

Mr. AVERY. I assumed they were, but I thought that should be cleared for the record.

That is all, Mr. Chairman.

The CHAIRMAN. You do use the term "repeater" as synonymous with what is referred to as boosters in connection with these hearings?

Mr. HARWARD. Yes, sir.

The CHAIRMAN. Mr. Harward, is it understood by the people out in that area that what we are doing here is providing machinery whereby the Federal Communications Commission can assist you people with the boosters that are now in operation to become legal operations, and that this practice of just setting up stations on your own without authority is to stop right at this time should the bill be approved?

Mr. HARWARD. Yes, sir; we recognize that it would require some change, perhaps, of the equipment we are now using.

The CHAIRMAN. You also recognize if there are other such booster stations so to speak, that are to be installed, it will be necessary to come to the Federal Communications Commission and make a showing under the usual procedures that it is in the public interest?

Mr. HARWARD. That is generally understood.

The CHAIRMAN. And this machinery would give those now in operation an opportunity, without being shut off, to become legally operating stations and they may continue unless the Commission were to find they were against the public interest. But if there are others that are going to be installed, then they must come to the Federal Communications Commission and get authority for their establishment.

Mr. HARWARD. I think that condition will be welcomed.

The CHAIRMAN. I think it is a very important point. I have tried to stress at these hearings to the people out there that if this vehicle is provided and if someone else undertakes what they have been doing for the past several years, to start operating without a license, then they would be in violation of the act and certainly procedures would be instituted against them.

I think that should be made clear throughout the area affected.

Mr. HARWARD. I think there would be no problem in our area in that regard.

The CHAIRMAN. Thank you very much for your appearance here and the testimony on this.

I want to compliment all you people for getting together and resolving the problem on a satisfactory basis; not only among yourselves, but with the Federal Communications Commission and others interested in it.

Mr. HARWARD. Thank you very much.

Mr. AVERY. Could I propound a question to the chairman of the committee in view of the chairman's dissertation? In view of the possibility that this bill might not become law, at the same time that should not be construed as an approval of Congress for further booster stations to be constructed without authority from the Federal Communications Commission.

The CHAIRMAN. On the contrary, if this law is not passed, I think the Federal Communications Commission has a duty to proceed immediately and to bring whatever proceedings are necessary to see that compliance is achieved.

Mr. HARWARD. And remember the days of prohibition and bootleggers.

The CHAIRMAN. And I can appreciate the situation these people find themselves in. I think it is the duty of Congress to help them do something about it.

Mr. James P. Alger.

STATEMENT OF JAMES P. ALGER, COUNTY ATTORNEY OF CARBON COUNTY, UTAH

Mr. ALGER. Mr. Chairman, I am county attorney of Carbon County, Utah.

As a lawyer, I am happy to accept the Chair's admonition we not press our case too far after it has been won. I hope that is the situation. I understand Congressman Moss is a native of my area.

Mr. Moss. That is correct.

The CHAIRMAN. I congratulate both you and Mr. Moss.

Mr. ALGER. I would perhaps add only one thing to what my statement contains. Some of that is repetitious to what has been said. We are particularly concerned with the passage of this legislation, not only because we operate boosters and convert Salt Lake City channels 4 and 5 to channels 8, 10, and 12, and transmit them to our people, but also because we have been involved along with Mr. Harward's county in law suits involving the operation of these boosters. These suits were brought by CATV people who were operating in our counties.

We unfortunately had the experience of having one person who operated a CATV system deliberately interfering, or jamming our television signal when transmitted. When we called the FCC, they were very cooperative and they sent an engineer out to help us trace down the source of the signal.

However, we are in a position where the FCC does not feel it should act too much in our behalf because we are not licensed, either, so we have the situation where we have two people broadcasting unauthorized signals and the FCC has to decide which signal they should worry about.

Of course, in this case this was not a valid television signal, it was an out and out jam, just a deliberate attempt to interfere with ours.

It may seem we can get along without television, but nevertheless, when you want to watch it, you want to have it there so you can watch it. So that is our situation.

With this licensing we feel the FCC could come in when we had a deliberate attempt at interference and I assume force that person making the interference stop it since we would be licensed under their

regulations. We have one facility. We anticipate we would have to install two more since our area is particularly in the news, and it will take two more stations to cover the entire county.

It is financed by taxes authorized by our State legislature.

That, I believe, is the substance of what I have to add to this testimony, if there are no questions.

The CHAIRMAN. Mr. Moss?

Mr. MOSS. No questions.

Mr. YOUNGER. Does the State of Utah license these stations?

Mr. ALGER. We have no licensing regulations.

It is merely a matter of the legislature having authorized counties to levy a tax to construct these installations.

Mr. YOUNGER. Do you have authority under that law for the county to erect a regular station?

Mr. ALGER. You mean a regular television broadcasting station, a station that does not repeat another signal?

Mr. YOUNGER. Yes.

Mr. ALGER. No. This would be merely for repeater purposes.

Mr. YOUNGER. That is all.

The CHAIRMAN. Mr. Avery?

Mr. AVERY. I am intrigued by the fact you said the State legislation had authorized the county to levy a tax to construct and maintain these rebroadcasting facilities.

Mr. ALGER. That is correct. What the legislature did was expand the definition of our recreation fund law, and included television in the definition of recreation.

Mr. AVERY. In other words, it is not a voluntary basis in Utah.

Mr. ALGER. That is correct.

There have been counties which put these in before this law and also which constructed them through voluntary contributions and labor, but in our county it was constructed entirely at tax expense.

Mr. AVERY. I have no further questions.

The CHAIRMAN. Mr. Alger, your entire statement will be included in the record.

(The statement follows:)

TESTIMONY OF JAMES P. ALGER, COUNTY ATTORNEY OF CARBON COUNTY, UTAH, BEFORE HOUSE INTERSTATE AND FOREIGN COMMERCE COMMITTEE, JUNE 6, 1960

Subject: Television booster legislation.

Mr. Chairman, Carbon County, the county which I serve as its county attorney, is situated in the east-central portion of Utah. It is an industrial area with the largest coal deposits west of the Mississippi River. Unfortunately, it suffers, as all coal areas, from the advances in mechanization and decline of markets in its principal industry. The economic facts of life of this area are significant for our purposes here today only to indicate one of the reasons why booster television is so important to us.

My county has a population of approximately 21,000 people and an assessed valuation of $41 million. We also happen to be 150 miles from the only television stations having access to network television in the State of Utah. These stations are, of course, located in Salt Lake City. In addition to the distance, we are separated from the television broadcasting area by a range of mountains having elevations in excess of 10,000 feet. What this means to our people is that we cannot receive television without special equipment and facilities.

A few years ago certain businesses and individuals within the county felt it both practical and profitable to provide television by means of central antennas, which received the television signals and conveyed these signals by wires into each home subscribing for the services. These services were provided in three of

our more populous areas to those who could afford them. The connection fee for having the wire run into your home varied from $100 to $300, and the monthly service charge from $3 to $6 depending upon where you lived, and from whom the service was purchased. The resulting television ranged in quality from fair to poor. In addition, a great many of our people could not avail themselves of this service either because of their financial circumstances, or because they happen to live outside one of the population centers in an area where the running of a line by those providing the services was not economically feasible. It must be kept in mind that a certain percent of our people are unemployed and many others are living on miners' pensions and social security.

In the fall of last year, 1959, the Board of County Commissioners of Carbon County, pursuant to an act of authorization of the Utah State Legislature permitting counties to construct and maintain television relay facilities in such remote areas, decided that the people of our county should not be penalized from receiving television merely because of where they happen to live. They believed also that the present service was not adequate and that it was an economic burden on a great many people and certainly unfair that people in areas such as ours should have to pay the prices charged for the same television that others living more closely to the television stations received without charge. A decision was made by the county commission to construct an installation consisting of receivers and translators, which received channels 2, 4, and 5 from Salt Lake City, and converted them to channels 8, 10, and 12, and transmitted the signal on these channels by means of VHF translators known as boosters. These boosters relayed the signals directly to antennas at the individual homes. Our primary booster station has now been in operation since the first of the year. The results have been excellent and hundreds of our homes are presently receiving television from these boosters.

The great bulk of our population lives within a valley surrounded on the north, east, and west by the mountains about which I have spoken. The mountains have the fortunate effect of acting as a barrier to the signal and limiting the distance the signal can travel. For example, from the site of our primary station to the farthest point it must reach to the east is only approximately 30 miles. The range of mountains prevents further progress, or wandering, of the signal. It presents an ideal situation for short-range television transmission. To date, we have had only one instance of interference with other boosters in the area and the operators of those boosters are cooperating in correcting the interference.

According to the surveys we have had made, our present booster facility will serve approximately two-thirds of our population. The rest of our people live in areas which, because of intervening mountains, cannot be reached by the signal from our primary station. It will be necessary, therefore, for us to construct two secondary stations to service these areas. These signals would not have to travel more than 10 miles. We would naturally hope and recommend that the Federal Communications Commission be authorized to permit these additional relays where necessary and feasible, as well as to license the primary translator station. It would also be our recommendation that the Federal Communications Commission have authority to permit transmitting power in excess of the limitation of 1 watt in areas where such additional power was found to be necessary, and would not interfere with any other licensed facility.

I would like to make an additional observation. We have been very encouraged by the attitude of cooperation accorded to us by the television booster stations whose signals we relay. Such cooperation, of course, is good business. Booster stations such as ours increase the market area of the television station to a considerable degree, and the stations recognize that this makes their services more valuable for their advertisers.

As this committee is no doubt aware, UHF translators, which are presently authorized by the Federal Communications Commission regulations, could have provided the same services I have been discussing, but the cost of UHF translators, according to our information, runs $10 for UHF for each $1 VHF for the same services. It seems to us that where channels are available as they are in the sparsely settled mountains west, these available channels would be proper for limited area use.

Obviously, the cost of installing UHF translators, if relays were limited to this type, would place an intolerable burden on a small county with limited taxing powers and sources of revenue. To require the expenditure of $100,000 for a UHF facility when a VHF translator could be put into operation for $10,000 would be impossible for small counties to undertake. Moreover, UHF requires additional expenditures by the person using the signal who must convert his television set to enable him to receive UHF channels.

The extreme interest of those of us in the Mountain States in this television legislation may seem strange to persons living in the more highly populated areas where the multiplicity of channels at times may seem more of a nuisance than an aid. It is not strange, however, when you consider the great dependency in remote areas upon television for entertainment. Professional sports and legitimate theater productions are not available to us and even motion-picture theaters become fewer all the time, just as they do in the cities.

To those of us in remote areas and particularly in the Mountain States, the issue in this legislation is a simple one, as I am certain the distinguished gentlemen of the committee are well aware: Either the bill is passed and VHF boosters are permitted to continue their service in such remote areas, or investments of thousands of dollars which have been expended by localities may be made useless, and the residents of our areas deprived of the most practical means yet discovered for the furnishing of television. By no stretch of logic could anyone reasonably contend that all channels in the VHF band should be reserved for television stations. If, as a matter of fact, only three are in use by these stations as is the case with us, the other channels should be available for relaying those three channels.

The CHAIRMAN. May I also thank you for your appearance here, you and the others coming from Montana, Utah, and Wyoming, to express the interest of your people with regard to this problem.

The Congress, in my opinion, owes a responsibility to you people to help you get this matter straightened out.

Mr. ALGER. Thank you, and we would like to express our appreciation to the committee.

The CHAIRMAN. Thank you very much.

Mr. Ray Nash.

STATEMENT OF RAY E. NASH, COUNTY ATTORNEY OF UINTAH COUNTY, UTAH

Mr. NASH. My name is Ray E. Nash. I am county attorney from Vernal, Utah. I represent all of the Uintah Basin. I beg permission to have my report made a part of the record at this time, which I have furnished.

The CHAIRMAN. Let it be received for the record.

(The report follows:)

STATEMENT OF RAY E. NASH, COUNTY ATTORNEY OF UINTAH COUNTY, UTAH, BEFORE HOUSE INTERSTATE AND FOREIGN COMMERCE COMMITTEE, JUNE 6, 1960

Subject: Information relative to Uintah County, Utah, booster television

The following information is presented in connection with the Uintah County TV booster station which is located in Uintah County and the area it serves—Uintah and Duchesne Counties, Utah and Rio Blanco County, Colo.—by Ray E. Nash, county attorney

PRELIMINARY

Uintah County is an area located in the northeastern part of the State of Utah, bounded by the Colorado line on the east and Duchesne County on the west, the Uinta Mountains on the north and Grand County on the south. Uintah County is approximately 100 miles long and 55 miles wide and has an area of approximately 5,000 square miles, which is roughly the size in area of the State of Connecticut and approximately 4 times the area of the State of Rhode Island. In this area, approximately 12,000 people live, the bulk of the population being located in Ashley Valley with farm, stockraising, and ranching units scattered in areas throughout all of Uintah County.

Duchesne County is located in the Uintah Basin and is 3,600 square miles in area, being about 60 miles in width and 60 miles in length. Eight thousand people live in Duchesne County.

In Rio Blanco County, Colo., the communities of Meeker and Rangely, Colo., are served via the Uintah Basin booster system. Meeker, Colo., is the county seat of Rio Blanco County and is located about 80 miles east of the Utah-Colorado line.

Uintah County, pursuant to the statutes of the State of Utah, installed in the summer of 1958 a booster television installation, the same being located on Blue Mountain in eastern Uintah County near the Colorado State line. Booster installation picks up three Salt Lake City channels; namely, channels 2, 4, and 5, and they are rebroadcast by it through all of Uintah County with the exception of perhaps a shaded area in the far south in the deep defiles and canyons near the Green River. Television service in Uintah County was nonexistent prior to installation of this booster service with the exception of a pipeline cable system serving Vernal, Utah, and the limited availability of direct broadcast from Grand Junction, Colo., the latter was intermittent and covered only small portions of this area prior to the installation of booster television service.

AREA COVERED BY BOOSTERS

The booster service installed on Blue Mountain covers all of Uintah County and a major portion of Duchesne County to the west, Rangely, Colo., and Artesia, Colo., as well as Meeker, Colo., the length and breadth of the area covered by the booster service would be the length from Meeker, Colo., to Mountain Home in Duchesne County, Utah, approximately 140 miles long and about 60 miles wide.

RECEPTION SERVICE

Approximately 80 percent of the people of Uintah County have television service of one kind or another. Outside of Vernal city all of the television sets in Uintah County receive their signals from the booster station located on Blue Mountain. There are approximately 1,500 sets in Uintah County receiving booster signals. In the city approximately 600 units are receiving television from the cable system serving the Vernal area. In addition to Uintah County a vast portion of Duchesne County to the west is now being served by our booster signals. In Colorado the cities of Artesia and Rangely are receiving their television service from this communication point. Meeker, Colo., is also receiving their signals from our installation which it redirects again from a hill above Meeker down into the town.

It is estimated that 8,000 to 10,000 people receive television via the booster system operated in Uintah County.

COSTS OF INSTALLATION AND OPERATION

Costs of installing the Uintah County television booster station to date has been $10,483.59. The costs of upkeep for a period of 22½ months has been the sum of $1,063.20. In addition to this amount, there has been contributed by the people of Meeker, Colo., the sum of $1,500 which is in addition to the above figures. The costs of maintaining and operating the station at the present time run about $75 per month. This includes costs of power and the work put in by technicians.

Part of the cost of installation was the building of an 8-mile powerline from the source of supply up the face of Blue Mountain which was the largest cost.

INTERFERENCE

Since the installation of the booster station by Uintah County, the Frontier Airlines, the local radio station, and other units operating by private radio communications have been contacted and they report no interference of any kind has been observed from any of these sources, and none has been reported or is known to exist in connection with the booster station which is operated on the site above mentioned.

OUTPUT

The station receives signals from Salt Lake City and rebroadcasts them on one 1-watt output.

NECESSITY FOR THE BOOSTER STATION

It is necessary that booster television be made available to people in Uintah and Duchesne Counties and the surrounding area if they are going to receive television reception of any nature whatsoever. The Uintah Basin is bordered on the north by the Uintah Mountains, on the west by the Wasatch Mountains, and on the east by the Book Cliff Mountains. This area is shadowed from any

television reception from Salt Lake City on the west, or from Denver from the east, and it is impossible to get adequate television reception from direct broadcast in this area under present conditions without the use of booster television, which can be used in this area. Booster television has proved very adequate and is very satisfactory as evidenced by the great number of people using it. And it is strongly submitted that without the operation of booster television this media of communication would be denied to all of the residents of the Uintah Basin which are in excess of 10,000 and also including 4,000 people in Colorado who are receiving it.

It is noted in connection with this that not all of the people receive television reception, but it is available and can be obtained by them, and the figures in this paragraph represent the total number of present inhabitants of this area who could receive television reception.

Mr. NASH. I think perhaps a few preliminary statements in addition to what has already been made and what appears in the report will be all that is necessary, and it won't be necessary to go any further.

Fundamentally, the Uintah Basin lies in the northeastern part of the State of Utah, is surrounded by high mountains, which render direct television reception impossible.

The deep defiles of the canyons in this area, and the low valleys surrounded by high mountains of approximately 10,000 feet in elevation, render this media of communication beyond the reach of people without the booster system, or additional systems.

All of this area is served by booster television with the exception of the small part in Vernal, which does have a cable system that is piped in. In addition to this, Meeker, Colo., in Rio Blanco County, receive their television signals from our establishment, which is on Blue Mountain, slightly west of the Utah-Colorado line.

As to the size of our area that is served, it is approximately 60 to 75 miles north to south, and 140 miles east to west. The area of my county alone is roughly four times the size of the State of Rhode Island. That is just a comparison. We transmit on an output of 1 watt that is received on the west on Mountain Home, and in the east is Meeker, Colo., where it is again redeflected.

As to interference, there is an aviation beacon signal right adjoining the facility at Meeker, Colo., and we have repeatedly contacted them and the Frontier Airlines to see if there has been any interference, and they report none has been occasioned or noticed.

The cost of our operation was mainly the cost of constructing a powerline which I think is set forth in the report at about $10,000. Our cost of operating this facility runs about $75 a month. It has been about $1,000 for a period of 22 months, which is quite minimal for the coverage that you get for approximately 25,000 to 30,000 people in this area.

Without a booster system, we might say 90 percent of them would be denied television reception of any kind because economically it is not feasible or possible for organizations or broadcasting stations to establish direct television service that could be received in this area.

We submit without this enabling legislation, which is proposed for the Federal Communications Commission, we, as citizens of this area, would be denied a great amount of pleasure and also the news and other items we receive on television.

We respectfully request that the Senate bill under consideration be passed in its present form.

I think that is all.

The CHAIRMAN. Thank you very much, Mr. Nash.

Mr. Moss?

Mr. Moss. No questions.

The Chairman. Mr. Younger?

Mr. Younger. You say you do have a cable system?

Mr. Nash. Yes, Mr. Younger. A cable system was established which brings television into the metropolitan area of Vernal, the county seat. There are about 600 sets in Vernal City, which receive reception from this, but out in the hinterlands, the ranch area, the other smaller communities, it is economically impossible for that and unfeasible for this cable organization to bring TV to that area.

Mr. Younger. What do they charge?

Mr. Nash. $4 per month, and an initial fee of $200. That may have been changed to a lesser amount.

Mr. Younger. Where do they pick up the signal?

Mr. Nash. West of Vernal, which is 20 miles from where we receive the signal and rebroadcast.

Mr. Younger. They pick up the Salt Lake channels?

Mr. Nash. The three Salt Lake channels and bring them into Vernal City.

Mr. Younger. Is that the only cable system in your area?

Mr. Nash. Yes.

Mr. Younger. Is it owned by the local people?

Mr. Nash. It is privately owned by individuals who pick up the free signals from Salt Lake and then charge for their facility of bringing it to the various homes.

Mr. Younger. It isn't a company that owns cable systems in other States?

Mr. Nash. It is a private organization owned by private individuals.

Mr. Younger. That is all.

The Chairman. Mr. Avery?

Mr. Avery. I do not want to provoke a detailed answer, but this question has been going through my mind all day long. If you have a booster station beamed at channel 2 for rebroadcast, are you wedded indefinitely to that channel 2, or can you go out and switch that over to channel 4? I notice there are three stations in Salt Lake City, Utah. If that is true, are you wedded to one by these booster facilities, to one channel, or can you switch that around and get any one of the three?

Mr. Nash. Mr. Avery, as to the engineering mechanics, I am a little unable to report. As I understand, they have a separate device for each separate channel, and it is a part of that They are trying to get channel 7 in, but due to this matter being taken up, the county commissioners have felt reluctant to proceed to enlarge their reception, or their repeating, or boosting of any additional signals until a determination was made here

Mr. Avery. In other words, as it stands at the present time, one booster facility serves one channel?

Mr. Nash. Yes; that is one apparatus.

Mr. Younger. With regard to these booster stations, say that is channel X at Salt Lake. What are the considerations in selling advertising with the coverage thay have? I am wondering if you pick up X station from Salt Lake and rebroadcast it, do they include that extended area in their shopping area, or in their advertising area?

Mr. NASH. I do not know, Mr. Younger, other than the engineers from these various television stations, the mother stations, so to speak, have been very interested and anxious to give us all the assistance they could in engineering. If that is a commitment they do that, it perhaps could be accepted as such.

Mr. MOSS. I would say it is undoubtedly true if they have coverage 50 miles away, their rate card will reflect that fact.

Mr. NASH. I know they are very, very pleased with the fact they reach as far east as Meeker, Colo.

Mr. YOUNGER. That would be one reason why it won't be acceptable, Mr. Avery, for switching from one station to another.

You are sort of tied, in a way, to one station.

Mr. AVERY. I was just wondering if it was mechanically possible.

Mr. NASH. I would not want to say.

The CHAIRMAN. The next witness is Mr. Eugene M. Ewing.

Mr. Ewing, will you please identify yourself for the record?

STATEMENT OF EUGENE M. EWING, PRESIDENT, WYOMING TV REPEATERS ASSOCIATION, BUFFALO, WYO.

Mr. EWING. Mr. Chairman, my name is Eugene M. Ewing and I am from Buffalo, Wyo. I am president of the Wyoming TV Repeaters Association, and I am also here representing my own home community of Buffalo, Wyo.

These fellows who have appeared ahead of me have covered quite a bit of the territory which I think my statement also covers. But, I am a technician myself, and I have been working with these boosters for 3 years, practically, you might say, all over the State of Wyoming.

There is one question that was raised here this morning that I have heard mentioned several times: Mr. Chairman, you were worried about it and it is one thing that we have worried about quite a bit in our own State and that is interference. The majority of the equipment that we are using in the State of Wyoming is Canadian built, but in Canada they have legalized these boosters. They legalized them up to 100 watts. We fellows found out about this equipment and, so, we went to buying it and shipping it in here. This equipment is all tested and controlled in our converters. In our own home installation we pick up channel 2 out of Casper, Wyo., and convert this channel over to 7, which is 177 megacycles and we transmit it back into our town 3 miles.

The average coverage of our signal is approximately 15 miles from our town, and as far as our signal getting out and interfering with anybody else, there is not much chance of that, because we have a bunch of hills which it is going into and there is nothing on the other side. The closest town to it is 90 miles away.

The CHAIRMAN. Is that Casper?

Mr. EWING. No, sir; that is Gillette. Really, in our part of the country, as far as the interference problem is concerned, as long as a good type of equipment that the Federal Communications Commission approves, and which we are very willing to use, and are also willing for them to set up regulations that we can abide by, that is all we want. We want a license and some regulation so we know where we stand. We are getting tired of taking 90-day extensions. It has been 90 days and 90 days for the last 2 years, and any way that we can get regulated, we would welcome it.

If there are any questions which you would like to ask me about these boosters on the technical end of it, I will see if I can answer them for you in any way whatever.

The CHAIRMAN. Would you desire to have your statement printed in the record in full?

Mr. EWING. Yes, sir.

The CHAIRMAN. You may do so at this point.

Mr. EWING. Thank you, sir.

(The statement referred to follows:)

STATEMENT BY EUGENE M. EWING, BUFFALO, WYO.

Mr. Chairman and committee members, my name is Eugene M. Ewing, and I am here today representing my home town of Buffalo, Wyo., population 3,083, and the Wyoming TV Repeaters Association. I am here to endeavor in my small way to acquaint you with a television situation that exists throughout our State as well as most of the West. We must have a means of legitimately receiving television by VHF boosters or over 70,000 people in Wyoming alone will be deprived of television, which they now have.

By way of explanation let me take as an example the VHF booster we use in my hometown of Buffalo, Wyo. Our booster picks up the primary signal from KTWO–TV in Casper, Wyo., approximately 110 miles south. In order to find a usable signal a number of us tested all available high terrain until an area was found where a good signal could be received, where power could be brought to the location, and where we could successfully retransmit to Buffalo. Because of the terrain it was impossible to receive the signal from KTWO–TV at Casper or any other signal directly into the town. After locating the area above town, donations poured in so that we were able to set up our present VHF repeater. This took place in March 1958. Since that time, and solely by donation of funds and work, we have enjoyed good television and have in no way interfered with other stations or airways. This is a situation typical and prevalent throughout all the mountainous Western States. Our booster is small, simple, and inexpensive and very efficiently covers the community of Buffalo as well as a number of ranches within a radius of 10 to 20 miles.

This story is one of the same all over our State and as president of our State organization, I know how important it is to our people to maintain their privileges and rights to have television. As an example, we watched Khrushchev torpedo the summit meeting in France just hours after it happened and on May 26, 1960, we watched Henry Cabot Lodge defend the United States in the U.N. Security Council meeting. Wyoming residents are proud of this privilege and want to know what is going on in the United States and the world today. With this situation in mind I call to your attention H.R. 11040 and H.R. 11041 bills which, if passed, will duly license and guarantee television to the thousands of people now receiving so-called illegal booster TV signals. Now if these bills are not passed by the House of Representatives and boosters are not licensed, the people of Wyoming and other Western States will be deprived of this privilege and public service.

At the present time, if the FCC so wanted, they could order every VHF booster off the air, but I know they would have a big job on their hands. One of the main issues of this battle of the boosters versus the FCC is that they say they are not authorized to license VHF boosters. This is OK but where did they get the authority to license UHF boosters for 100-watt output? In my estimation the FCC tried to get hard about this situation and ordered the boosters off the air and the response from the people of the Western States about not having television was so great that they granted extensions and yelled for help in saying that they were not authorized to act on the booster problem. I believe they are hiding behind Congress and want Congress to get them out of the bushes so they can go ahead and license VHF boosters, and, gentlemen, you can do this here today by passing these bills we are talking about.

Perhaps now is a good time to explain the difference between legalized UHF and unlicensed VHF boosters. UHF has many inherent disadvantages which make it not only difficult but impossible to use in mountainous terrain and small communities. Some of the main objections we have against UHF boosters are the high original cost and expensive maintenance. A UHF booster that would serve the area we are covering with a VHF booster at Buffalo would cost approximately

$27,000 as versus $4,000 we have spent on our VHF booster, including 2 years' operation costs. The individual set owner would also have to spend approximately $50 more for equipment to receive UHF television. You multiply this by 70,000 people, which is the approximate number of people receiving television by VHF boosters in Wyoming, and you can readily see why UHF installations would work an economic hardship on the people of Wyoming. Also in some mountainous areas UHF transmission would be of little use because of the high frequency at which it operates. Such high frequency will not allow a signal to bend into any depression or around any hill; consequently the rougher the terrain the poorer use you have of your UHF equipment.

There is also another important phase of this VHF booster problem. This pertains to community antenna TV systems. CATV systems have fought the boosters from the first installation and I know have spent many dollars trying to get the FCC to put the boosters off the air. They say we are illegal and we say they are also, which might be correct, but, if this is so, why should we be regulated and they operate as they please? A short time ago a representative of the National Community Antenna Television Association called on me at my place of business. This gentleman was very well dressed and educated. We talked over the booster situation and he said his organization was willing to help us out on our bill in the House of Representatives but they wanted to make two amendments to the bills. These are as follows: (1) Authorize and license all present boosters but new boosters would be unauthorized; and (2) after 5 years all VHF boosters would have to go to an approved type service which is, as you know, UHF. I know this was generous of the National Community Antenna Television organization and their representative but I assured him we didn't need their help or amendments to the present bill. The main thing I want to bring out in this fight of boosters versus CATV's is they have a good source of revenue from their oprations and we as booster operators are a nonprofit organization operating for the benefit of our communities. We don't have the finances to hire publicity men, lobbyists and lawyers to fight our battles. I am here today representing my State of Wyoming and my community of Buffalo, Wyo., for which I will receive no pay but the good people of our State and community will pay my expenses.

Mr. Chairman, in closing I would like to ask the House of Representatives to pass House bill No. 11040 so the citizens of Wyoming and other Western States may watch the national political conventions, elections and news of the world as I think we are entitled to as citizens of this wonderful country, the United States of America.

The CHAIRMAN. Mr. Moss, do you have any technical questions?

Mr. MOSS. No, sir; Mr. Chairman, I have no questions.

The CHAIRMAN. Mr. Younger?

Mr. YOUNGER. In your statement, Mr. Ewing, you talk about the community antenna system having fought the boosters all the way through.

Do you have any CATV?

Mr. EWING. We do not in our community, Mr. Younger.

Mr. YOUNGER. Do you have any in the State?

Mr. EWING. Yes, sir. We have had two cases which were indicated in the Senate hearings at Casper which Senator McGee heard of interference from CATV systems, and things got pretty hot and heavy.

Mr. YOUNGER. What do they charge?

Mr. EWING. Well, there used to be at Sheridan, Wyo., a hookup charge which was $125 and their monthly rate was $7.50. The thing that gets me is they talk about us fellows interfering, but they are using the same type of equipment we are, only we are transmitting out of an antenna and they are putting theirs in a coaxial cable and distributing it all over town on the utility company's light poles. But, we have had several instances where the cable systems have by advertisements in the paper been telling the people not to contribute money to these boosters on account of the fact that they would be contributing to an illegal organization. Well, according to law, that is right, but we have never gone so far as to do that in their behalf, because we consider that if we are not legal, so are they.

Mr. YOUNGER. There is only one operating at the present time?

Mr. EWING. No. There is one operating at Sheridan and there is one operating at Riverton and one at Casper, which is microwaving TV signals out of Denver and putting them into Casper.

We have a channel 2 station there that was authorized by the FCC that is running competition against them and they are dumping their signals in there to the public, and a lot of times they will have the same program on their cable systems as this TV station is transmitting right in town.

Mr. YOUNGER. Does the Denver station and the one in Casper belong to the same national hookup?

Mr. EWING. No, sir; the Casper station has a hookup with all three networks. They get their signal out of Denver on a microrelay. The FCC authorizes these microrelays for these national systems to bring this signal in to run competition against the TV station that we have authorized in this vicinity.

Mr. YOUNGER. They grant a license for that?

Mr. EWING. Yes, sir; for these relays to do that and cable systems to haul these signals in. We have a case of that in the State of Montana where a TV station was actually forced off the air because he could not make a go of it because the TV systems were bringing the stations from three networks, as far away as Spokane, Wash.

Mr. YOUNGER. Are those three CATV stations owned by one company or individual?

Mr. EWING. Well, there is a complete report in the Senate hearings as to how it is set up. I do not really know, but I know at the Senate hearing Mr. Daniels from Denver said that there are somewhere in the neighborhood of 20 or 30 CATV systems in the United States.

Mr. YOUNGER. Do they have a company title or something?

Mr. EWING. Yes, sir; but I could not furnish you their name.

Mr. YOUNGER. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Avery, do you have any questions?

Mr. AVERY. I have no questions, Mr. Chairman, but I would like to say "thank you" to Mr. Ewing for traveling all the way from Buffalo, Wyo., which is quite some distance away.

Mr. EWING. Thank you, sir.

The only thing I would like to say in closing is that we would like to have TV out there, and if we do not get it, I guess we could do like we used to do—just hunt and fish.

The CHAIRMAN. How far are you from Cheyenne?

Mr. EWING. About 300 miles, sir. We are just 38 miles south of Sheridan, Wyo.

The CHAIRMAN. Mr. Ewing, thank you very much for your testimony. It is commendable that you would join the others in coming this long distance to testify on this problem.

The next witness is Mr. Jack Bretey.

Mr. Bretey, will you please come forward and identify yourself for the record?

STATEMENT OF JACK BRETEY, VICE PRESIDENT, WYOMING TV REPEATERS ASSOCIATION

Mr. BRETEY. Mr. Chairman, my name is Jack Bretey and I am from Hanna, Wyo. I am a vice president of the Wyoming TV Repeaters Association.

Mr. Thompson, Senator McGee, and Mr. Ewing have pretty well covered everything that I had to say.

I would like to make a comment or two, and one is on this question which you asked Mr. Ewing about the number of cable TV installations in Wyoming. There are numerous ones. There is one at Laramie, one at Rawlins, one at Lander, DuBois, Riverton, and Cody. And, as he has already mentioned, Casper and Sheridan, and I believe there is one at Lusk.

I would like to also comment a little bit on this interference. It was mentioned here this morning with reference to interference of a booster station or repeater and the question came up as to whether it could be made incapable of putting out interference. Hardly anything is incapable of that, even an electric garage door opener, which can and has caused interference to the airways. Also, an electric welder is capable of it. There are numerous things—pretty near anything—capable of putting out interference. However, the chances are pretty small. But, there are definitely several cases of electric garage door openers which have put out interference, and I do not believe anyone has ever told anyone else they had to shut them down or take them out. I think they have worked it out where there is not much trouble of interference from that standpoint.

Another thing that was mentioned was station hardships on account of boosters and would a booster cause trouble to a mother station. Actually, in our case, channel 2 at Casper, Mr. Burke is the man who owns the station, and he has made the statement to us that without us he cannot live and without him we cannot live. We represent probably a good 50 percent of his coverage and he does use us for his advertising, as you mentioned.

Another thing are these rules, and I know this is not a rule committee, but we would like to mention them in case they ever do come up. These rules can shut these small boosters down just as effectively as an FCC order which says we are illegal and we have to get off the air. In my own particular case out there, there are about 30 sets watching the booster station and, economically, we just do not have the money if they make the rules too tough for us.

In the State of Wyoming there are a good many boosters running which do not have over 100 sets watching them, and economically, it is just working an awful hardship on them if these rules get too tough.

There are only three main mother stations in the State of Wyoming and they are Cheyenne, Casper, and we have channel 10 up at Bosler. I do not think I have to mention anything about them, at least in the State of Wyoming. Those stations just do not get the coverage without boosters. In my own case we are 52 miles south of Casper, and it does not reach in there. It just does not come in at all because of the terrain which is hilly and mountainous. If it were flat and level, it would reach 250 miles with the same power.

I believe Mr. Avery mentioned the fact as to whether or not a booster was wedded to a channel. It definitely is. If you are receiving channel 2, you cannot flip a switch and go to channel 4. You have to have another converter and antenna and just about the whole thing.

I believe that is all I have at this time. I would be glad to answer any questions.

The CHAIRMAN. Mr. Moss, do you have any questions?

Mr. MOSS. I have no questions, Mr. Chairman.

The CHAIRMAN. Mr. Younger.

Mr. YOUNGER. I would like to pursue this just a mintue on the question of these CATV stations.

The previous representative, Mr. Ewing, said that they are licensed by the FCC.

Mr. BRETEY. Only, sir, are microwave facilities. By that, they go out on a hill somewhere close to Denver and pick up a strong signal and microwave that signal, which they do in our case of Casper, to Casper and then they put this microwave signal on a cable and sell our antenna service, as they call it.

Mr. YOUNGER. Which of those operations, the one that receives or the one that transmits through the cable, is licensed?

Mr. BRETEY. The microwave, the one that transmits through the air.

Mr. YOUNGER. That is the only one that is licensed?

Mr. BRETEY. That is the only thing that is licensed; yes, sir. Otherwise, they can go up and take a signal and pipe it down and are free, as they call it, to sell our antenna service.

Mr. YOUNGER. Under that kind of operation, you cannot operate in any part of the country with the microwave license?

Mr. BRETEY. That is very correct.

Mr. YOUNGER. You cannot send a good many hundreds of miles and interfere with any other station, can you?

Mr. BRETEY. That is very correct. At the Senate hearing which Senator McGee conducted in Casper last year, Mr. Hathaway, who used to have channel 6 TV station in Casper, and he was on the stand there, definitely made the statement that cable TV if it did not put him out of business, contributed very much to his going out of business, and that was through this microwave. I believe they have three channels that they are bringing in—all three Denver stations.

Mr. YOUNGER. There is nothing to prevent you from getting on the hill and transmitting with a booster station into the same areas?

Mr. BRETEY. No, sir; not if we could pick up the signal, but we cannot transmit a signal 500 miles. The approximate length of a booster transmission I should say is approximately 30 miles, because of our limitation on power and other facilities.

Mr. YOUNGER. If you could pick up one station at Casper or one of the other local stations, you could go in and broadcast in the same area?

Mr. BRETEY. That is right.

Mr. YOUNGER. That is all, Mr. Chairman.

The Chairman. You do not intent to give the impression that there is present procedure for requiring CATV operations to get a license from the Federal Communications Commission?

Mr. BRETEY. No, sir, I sure do not. We believe that all TV is needed and can certainly live in this country together. I might say that we have the impression in our organization that every kind of rebroadcasting TV regulation is needed.

The CHAIRMAN. That was the thing which held up the consideration of this bill since last year.

Mr. BRETEY. That is right, sir.

The CHAIRMAN. I was advised, and as a matter of fact I was kept informed of the progress that was being made, that was not only this phase being worked out in the public interest satisfactorily, but that the companion bill licensing CATV and bringing them within the regulatory authority of the Commission was also being worked out. Apparently, they did have it worked out, but somebody kicked over the traces. When they got it on the floor of the Senate, why, I think to somebody's astonishment, it was sent back to the committee by a very close vote of one.

Mr. BRETEY. One was right.

The CHAIRMAN. So the CATV problem is not included in this.

Mr. BRETEY. That is right.

The CHAIRMAN. I have been waiting for these several months for that situation to be worked out as I was told it would be. Then, about the time I announced the hearings on this, I announced that we would not hold any hearings on the community antenna legislation because, obviously, it was too controversial so that we could not work it out. So that is the situation on that.

But, what you were referring to in response to Mr. Younger's questions were these microwave operations. To put one of those in operation, you have to get authority from the Communications Commission; is that not true?

Mr. BRETEY. That is right.

The CHAIRMAN. Thank you very much, Mr. Bretey, for your appearance and your testimony.

Mr. BRETEY. Thank you, sir. I would like to take this opportunity to thank all of you for your time.

The CHAIRMAN. We are glad to have you, along with those other people out from that part of the country.

Would you like to have your entire statement made a part of the record?

Mr. BRETEY. Yes, sir.

The CHAIRMAN. It will be included in the record at this point.

(The statement referred to follows:)

STATEMENT OF JACK BRETEY, HANNAH, WYO.

Mr. Chairman and Congressmen, my name is Jack Bretey. I am one of the vice presidents of the Wyoming TV Repeaters Association. I also represent several booster clubs in south-central Wyoming. I am like the advertisements for Viceroy cigarettes—I am not a TV man; I run a powerplant for the USBR at Kortes Dam.

I would like to digress from may written statement for a moment, if I may, in order to draw you a picture of the terrain in my part of the State which, in fact, pretty generally describes the terrain throughout the Rocky Mountain region.

To those of you who have not been in our State I would like to explain briefly why our boosters are needed. To begin with, without boosters we are without TV. The mountains and the long distances between stations—not just TV mother stations, but between towns—make it impossible for enough mother stations to exist to furnish direct signals to everyone. Therefore, we have to go up on a high hill or mountain where the existing signal is strong enough for a usable picture and rebeam this signal down or around as the case may be, to the small communities, towns, and rural areas which do not have signals from the mother stations.

It might be hard for some of you to realize the amount of work, effort, and ingenuity that has been expended on these projects. Roads were built up mountains. Powerlines were run up mountains that would have taxed the skill of a mountain sheep just to make the climb. Telephone lines were installed at these mountain stations, and equipment and tools were carried up by hand, many times by a man on snowshoes.

In our own case, all of the money for equipment was donated by the people of the community, as was all of the work. It is completely nonprofit in every way. All we get out of it is TV. In our case it has cost each viewer, in donations, approximately $65. That figure includes the $1 apiece it cost us to send me back here to try and impress you gentlemen with our need for booster TV and the need of regulation for all TV.

That same cost figure ($65 per individual) also includes the $1 apiece it cost us to send Mr. Hillberry, of Riverton, Wyo., and me to the Senate hearings last year. I might mention that I am not now, hor have I ever been paid for any of this work. I don't want to be paid for it. I am sure that 99 percent of all booster TV clubs operate in much the same manner.

These boosters which are so badly needed in a large portion of our region of the country are relatively inexpensive; they have to be or the people of my State could not afford them. They are also easy to set up and operate. Another reason they have to be inexpensive is that we cannot afford to have a $100 a day engineer on the job. Any electrician, serviceman, or handyman can set up a booster and do the general servicing of it. Once every year or so the equipment can be taken out and completely overhauled by a competent technician. This the people can afford. We can't possibly afford some of the high-priced devices which have been suggested as a way to receive a picture.

The average cost for a booster for one channel is less than $2,000. Some of the other ways of getting a picture for one channel run as high as $15,000 to $20,000. For all but the thickly populated areas this is out of the question.

Why should a minority rule when this country of ours was built on majority rule? In Wyoming well over one-half the population of the State watch TV off a booster; many of the rest of the viewers are able to get TV direct from the mother station, yet the bill to get CATV under jurisdiction of the FCC failed to pass in the Senate (by a very small majority). It is, if not a fact, at least a reasonable conclusion that CATV has, or can cause the downfall of free TV stations, and when this happens not only boosters but direct viewers are completely out of business. We do not want CATV out of business. All we want is a picture to watch.

We feel to be assured of a picture, not just now, but in the future, we, the boosters and everyone else connected with TV reproducing, must be regulated by the FCC.

There is no doubt that in a good portion of the Western and Midwestern States the majority of people see TV off the mother station, either direct or by booster. Generally these people want, and in fact at this day and age need, TV in the most economical way they can get it. We do not believe that anyone today acquainted with the facts would willingly shut off or take TV away from other people just because they happen to live in the more sparsely settled areas of our country. After all, you people who live in heavily populated sections should consider that at the rate the population is growing, either you or yours may, in the not so distant future, be living out in the sticks with us, and when you do you will want TV so that you can keep up with what is going on in the world just the same as we do.

We are sure all of you gentlemen are aware that we people of Wyoming are a pretty independent lot; we very much dislike anyone telling us what or how we should do anything. As a rule we have a pretty stock answer to anyone who tries to tell us what may or may not be good for us. I will omit the answer if you don't mind.

What we are driving at is this: We don't like rules any better than anyone else, but in the interest of better TV for everyone we think some form of regulation is absolutely essential, not only for us, but for everyone connected with the transmission of TV signals.

You have probably all heard about interference caused by boosters. This at one time was a real hot subject; in fact, that was actually why we were to be shut off. I am sure the past has proved that interference is no problem. We do not say that a booster some place hasn't caused interference, but we do say that with the know-how today all possibility of interference can be controlled and stopped. It is well known that even an electric garage door opener can, and has, cuased interference in both radio and TV, yet I don't believe anyone thought of giving all electric garage door opener owners an order to discontinue their use. We are also very sure that there are many more people watching booster TV than there are electric garage door owners.

Gentlemen, interference is not the problem. The problem is: Are we, the people in the isolated and thinly populated areas, entitled to TV, or are we, because we are few in numbers, to have our picture shut off completely in order that some can make money and a minor few have several different channels to watch?

The residents of Wyoming sincerely feel that you people will see, and should see, this TV problem in the proper perspective, and that is: TV for the majority at a price they can afford.

I wish to thank all of you gentlemen for your attention and for the opportunity you have given me to take up some of your time, especially when things throughout the world are in such a state of turmoil as they are today. The people of Wyoming can well appreciate the time and effort you are putting in on this TV hearing, and in their behalf I again wish to thank you most sincerely.

The CHAIRMAN. Is Mr. Rex G. Howell present?

Mr. HOWELL. Yes, sir.

The CHAIRMAN. Mr. Howell, you were scheduled to testify tomorrow.

Mr. HOWELL. Yes, sir.

The CHAIRMAN. Since you are here, and since tomorrow is going to be pretty well filled and since we are going to have a very tight schedule and in view of the fact that we cannot proceed with the hearings beyond 11 o'clock, we shall try to conclude these hearings and make the record, and we want to make as much progress as we can. So, if you do not mind making your presentation today, we would be glad to have you now. But, if you are not prepared until tomorrow, we would be glad to wait until then.

STATEMENT OF REX G. HOWELL, PRESIDENT, KREX–AM–FM–TV, KGLN, KREY–TV, GRAND JUNCTION AND MONTROSE, COLO.

Mr. HOWELL. Mr. Chairman, I will be happy to present mine today, and I might say that the bulk of this material I will merely request permission to insert it in the record and confine my remarks to those which are contained in the preliminary statements. I might even summarize portions of that, Mr. Chairman and members of the committee.

The first page of my statement is concerned solely with identifying myself with two small, market TV stations in western Colorado, a little description of the service we offer and the area we cover, and a map which is attached as an exhibit which shows where our stations are located.

You will note there are over 30 communities whose reception is dependent upon the use of these repeater devices to overcome the effects of the rugged mountain terrain.

The CHAIRMAN. We may have some difficulty in getting a map in the record, but we shall try.

Mr. HOWELL. I might add, I can get the original map, if it would be helpful.

The CHAIRMAN. I think this will serve our purposes as well as the original.

Mr. HOWELL. These communities, Mr. Chairman, all lie within the normal average coverage contours of our stations if we were situated in flat country; but, we are in the heart of the Rocky Mountains in an area known as the western slopes of Colorado, encompassing some 15 counties, all of which is very rugged and interlaced with plateaus which create many natural barriers to direct television reception. Hence, it is imperative that efficient, low-cost repeating devices be used; otherwise a substantial segment of our people will be denied television reception. The simplest and best method is to simply "neutralize" the mountain barrier by placing a low-power VHF

booster on the mountain top to bend some of the energy down into the valleys which lie in the electronic shadow areas. These valleys which are precluded from line of site reception from the TV broadcast station contain the farms, ranches, and small towns where the bulk of our rural people live.

These people have met the problem on their own. In the absence of any specific rules by the FCC, they have constructed at their own expense the simple limited radiation devices known as boosters and with very low power; these boosters nonetheless provide clear reception, and without interference to any other service. When the FCC initially required the boosters to go to the expensive and inefficient UHF translators, which are totally unsuited to use in mountainous areas, the State of Colorado interceded on behalf of the booster-served communities and the Federal Communications Commission granted reconsideration. I might add at this point that it was the Governor of Colorado who appeared before the Commission to formally request that the matter be held over for further consideration, and also the former chairman of the Senate Foreign and Interstate Commerce Committee, Senator Johnson, who appeared and made such a request.

Now it appears that the FCC believes it needs additional legislation in order to license these boosters for continued operation. If there is uncertainty with respect to the present authority of the FCC of this area of regulation, then it is proper that the agency, itself a creature of the Congress, should turn to the people's representatives in Government for direction.

There is urgent need for action at this session of Congress since the boosters are now operating under a limited period of grace.

There is another equally pressing problem which, if left unresolved, will also result in the loss of television service to many people, including many of those relying upon boosters whose sources of programs are the licensed television stations in many of the nonmetropolitan areas of the United States. There is a method, and you have heard it discussed here today, other than the booster by which a limited number of people receive television in mountainous areas. It is known as a community antenna system or CATV. Since this method requires the use of coaxial cables to interconnect receiving sets at their homes to a remote receiving antenna, it is naturally a very costly method of providing reception. It usually involves an initially expensive installation plus a monthly rental fee. Obviously, it becomes uneconomical to operate CATV systems in smaller towns, as only concentrated population centers can justify the cost.

The larger towns which are wired for CATV do not provide service beyond the city limits. Thus the CATV is perhaps the least desirable of all repeating devices since its service is limited only to city residents and the rural people are left without service. The other significant factor is that in all cases reception by CATV is available only to those who can afford to pay it. The CATV method has also created some additional problems which threaten disruption of the growth and development of television in its traditional pattern of free service in rural areas.

My predecessor to the stand pointed that out a moment ago.

As was mentioned this morning in the questions addressed to the Chairman of the Federal Communications Commission, CATV is a form of pay television since the subscriber must pay the cable system

a fee for all programs he receives despite the fact that these programs are broadcast initially as a part of the free service of commercial broadcasting.

CATV systems are not economically feasible in small communities as they are designed to serve large clusters of population. Less than a half dozen of these cable systems are in operation in Colorado. The rest of the people are dependent upon boosters and translators for service in the outlying areas of the State. CATV is, therefore, no substitute for the service now provided by boosters. In spite of this fact we have the anomaly in Colorado that licensing of boosters is opposed vigorously by the CATV operators.

It is most unfortunate that the operators of pay TV have elected to oppose boosters. It is our belief that there is a place for all kinds of repeating devices which enlarge the availability of television reception to the people. The ultimate goal of American broadcasting is to provide, if possible, a choice of service to all the people wherever they may live. Thanks to the ingenuity of the people who have constructed these booster stations, at least one television channel is now available to the majority of the people of the State of Colorado despite the problems created by the rugged terrain over much of the State.

S. 1886 in our opinion is a good bill. It would provide the legislative means for licensing VHF TV boosters or translators, even where such construction has already taken place. The act now provides that a license will not be issued where prior construction has taken place. This is probably the only thing lacking in the present authority and responsibility of the Federal Communications Commission to deal with the licensing of boosters under some set of fair rules of operation and standards.

I have said that S. 1886 is a good bill. This is not to say that it is perfect. In my humble opinion there are some significant omissions from the bill, which have been drawn in a separate measure by Congressman King of Utah. Personally I would much prefer to see the King bill added as an amendment to S. 1886 in order to avoid a piecemeal approach to the whole problem of licensing television repeater devices. As I understand it, the King bill will provide for the licensing of CATV systems under the standard of public interest, convenience, and necessity.

The problems of CATV and boosters are inseparably related. That, gentlemen, I would like to repeat. Mr. Chairman, the problems of CATV and boosters are inseparably related. They serve similar purposes under different conditions.

It is our belief that CATV systems rightfully belong under the jurisdiction of the FCC. The Commission is charged with the responsibility for all non-Government communications, whether by radio or by wire connection, in the Nation.

The CHAIRMAN. Mr. Howell, I have just announced that we will not hold hearings on the CATV problem. I have announced that we are not going to get into it this year and I am wondering whether the CATV people are not in here opposing this legislation. I am wondering if we are going to have a controversy develop here which is going to interfere with our trying to clear up at least this part of it?

Mr. HOWELL. Mr. Chairman, I realize the bill in its present form does not include this, and in the earlier part of my statement I made reference to the hope that perhaps an amendment which would

incorporate certain features of the King bill might be added to this measure in order to avoid a piecemeal approach.

I will be glad to introduce the balance of this statement.

The CHAIRMAN. I am just telling you what the situation is, and I do not think the other bills would be germane to this one, because they deal with entirely different subjects. I tried to explain that efforts have been made to work it all out, and we are going to cooperate in doing so. But they did not come through with a final solution to the other problem and there is not time at this session now to do it in view of what happened in the Senate a week ago.

Mr. HOWELL. May I make just one brief observation, Mr. Chairman?

The CHAIRMAN. Yes, sir.

Mr. HOWELL. We are concerned with these boosters. The whole matter affects another. In my area if CATV destroys local broadcasting, because 36 of these boosters that are up here asking for licenses are dependent upon my stations for reception, the whole matter of licensing boosters becomes a matter of no longer concern, because there will be nothing to boost. It was for that point that I thought it might be germane to the discussion today.

There are other paragraphs devoted to it, which the committee at its leisure may observe in the record, and I introduce all of it as such.

I think, perhaps, unless there are some questions, I would like to conclude by saying that the paramount issue must always be kept in focus, and is just exactly that which the Chairman of the FCC pointed up this morning, by whatever means are employed to meet the problems, and that issue is the public interest. It is this public interest which formed the keystone of the Communications Act of 1934 and is of no less concern to the Congress of today than it was to the original writers of the act.

I think failure to act affirmatively on these matters can only result in loss of service to the public. Unregulated CATV systems will eventually drive small town television stations out of business, or seriously curtail their service through siphoning away network programs, film programs, national advertisers, and local advertisers. This will mean that television in many parts of the Nation will be available only to those favored few who are able to pay and live in areas of sufficient population to support the cable systems.

The present practice of transmitting free programs to distant points to be sold by CATV systems to subscribers has undermined the Federal Communications Commission's own allocation table and is in direct contradiction to the spirit of the Communications Act. It not only poses a grave threat to the public interest but has already done nearly irreparable damage in thwarting and stunting the orderly growth of television broadcasting in many communities.

I will skip any discussion at this time of the other matter, although I feel very deeply on the need for something to be done in regulating that phase of the repeater problem, but we feel that the Commission must act affirmatively with regard to licensing the boosters to avoid chaos. There is no question that the people of the United States want and deserve free television. They prefer to get it by legal means.

The CHAIRMAN. What page are you reading from now?

Mr. HOWELL. Page 7. The Commission must act affirmatively with regard to licensing the boosters to avoid chaos. The broadcast in-

dustry of the Nation is committed to the principle of broadcast reception without charge to the listener and viewer. The use of boosters under proper regulation and licensing meets that criterion, hence broadcasters themselves are anxious to help in every way possible, including engineering service where needed, to assure satisfactory booster operations, once they become legal.

I have attached, in addition to the preliminary statement from which I have merely read excerpts, the following items, Mr. Chairman, which I would like to have your permission to enter into the record of the hearing, which I believe are germane to the questions before the committee. They are:

(1) A letter written by me to the FCC on June 2, 1958, in response to Public Notice G–59151 dated May 22, 1958, with the notation that the call letters KFXJ–TV referred therein have since been changed to KREY–TV;

(2) Certain of the comments which I filed before the FCC in the matter of the dismissal of rulemaking relating to amendment of part 4 of the Commission's rules, docket No. 12116;

(3) Original comments filed by KREX–TV before the FCC in the above rulemaking docket;

(4) A copy of a memorial to the Congress on the subject of booster stations passed by the Colorado Assembly in 1959;

(5) A copy of a bill which I introduced in the Colorado Legislature this year which authorizes cities, towns, villages, and school districts in Colorado to construct and operate TV booster stations with certain public funds; and

(6) A letter written by me to the former Chairman of the FCC on August 7, 1959, regarding statements attributed to him on the subject of TV repeating devices.

Mr. Chairman and gentlemen, I thank you for the courtesies you have extended to me here today, and I only hope that my humble efforts may prove of some value to the distinguished Members of Congress in their deliberations.

Thank you very much.

The CHAIRMAN. Are there any questions, gentlemen?

Mr. YOUNGER. Do the microwave stations reach a territory that cannot be served by booster stations?

Mr. HOWELL. There might be some occasion, Mr. Younger, in which they do; yes, sir. That is why I say there is a place in the picture for all forms of repeating devices.

Mr. YOUNGER. But they do reach some?

Mr. HOWELL. Yes, sir; undoubtedly they do.

The CHAIRMAN. A microwave is merely an instrument which takes the signal and passes it on an additional distance that could not otherwise be reached; is that right?

Mr. HOWELL. Ordinarily, the microwave is engaged in transporting programs for some distance beyond the range of an ordinary station. It imports its signals, perhaps, into another State.

The CHAIRMAN. Where there is no available cable or wire?

Mr. HOWELL. Generally, it is used for that purpose—to feed a cable system—and I know of no boosters, however, which are getting a signal via microwave. They are confined to picking up directly from the mother station.

The CHAIRMAN. Mr. Avery, do you have any questions?

Mr. AVERY. I might say, Mr. Howell, that was the reason for my asking the question this morning of the Chairman of the Commission, because I know of a pending proposition whereby a booster applicant plans at this point to use microwave to lift a signal from one network into a market that is now preempted by another, and I think at that point the Commission certainly has to consider the economics of this as a part of public convenience and necessity.

Mr. HOWELL. Mr. Avery, I happen to have a paragraph or two in the statement itself devoted to that very point in which I state I believe that duplication of the local programs of the local station should be precluded by any repeating device, because this does not bring in new service to the community, but merely supplants an existing service. Where they bring in new programs and some other programs to the public, then the public interest is served. But in transporting a program into the area, that merely duplicates the efforts already going on by the local station and, perhaps, in the long run deprives that station of getting those programs and then it no longer serves the public interest, convenience, and necessity. It can be a detriment also because national advertisers, if they are able to get a substantial portion of the coverage free, will not pay for the services of the local station and, hence, a local means of expression is destroyed if the local loses out.

Mr. AVERY. I agree with you, Mr. Howell, as far as we have gone, but I am not so sure that I would always agree that bringing in an additional signal or a separate signal would always be in the interest of public convenience and necessity.

Mr. HOWELL. The point I am making is the real issue with reference to duplication. Obviously, it does present some economic problems, but we do not feel we can place ourselves against what the people want. If they want additional services, they are entitled to them, but if they bring in a service which merely destroys the local means of expression by substituting the programs which the local station originates, then the public interest is severely curtailed.

Mr. AVERY. Is not that precisely what happened in the case of Casper, Wyo.?

Mr. HOWELL. Yes, sir; because one of the stations was forced to go off the air because of that fact.

Mr. Moss. Will the gentleman yield to me at that point?

Mr. AVERY. I will yield to Mr. Moss.

Mr. Moss. Under which circumstances would a station be selling coverage or an advertiser be buying coverage which was not included or reflected in a rate card of a station?

You mentioned that the national advertisers seek this means of getting free coverage.

Mr. HOWELL. Yes, sir.

Mr. Moss. And a station will boost occasionally its total coverage whether achieved through boosters or whether achieved through a microwave relay to a point where a community system undertakes to distribute——

Mr. HOWELL. In the latter case, Mr. Moss, you would have the situation where, perhaps, the cream of the market was already covered by the cable system and the national advertisers might then decide that they would not longer be interested in buying the services of that station merely to reach the surrounding, contiguous rural area but,

rather, would accept the coverage he was getting as a bonus from some other metropolitan station.

Mr. Moss. With reference to this question of bonus coverage, I am not quite familiar with that.

Mr. HOWELL. Yes, sir.

Mr. Moss. If a bonus occurred, the metropolitan station would say that that bonus was reflected in their rate structure?

Mr. HOWELL. I do not believe that that is the case. As a matter of fact, I know that the networks in computing their rates for stations have made it a point of including only that coverage which is within the normal coverage contour of a station. I do not believe a transporting of signals to some distant point by microwave reflects in any way anywhere added earnings on the part of the station.

Mr. Moss. I was not inferring the reflection in earnings to a station buying a service from a network but, rather, in the total cost which the network would achieve because of the coverage, to which I think they pay very close attention. If a local station is in a reasonably strong position in an area, it will undoubtedly reflect that fact in its advertising rates as it increases its total viewing audience.

You would, would you not?

Mr. HOWELL. We would like to feel that eventually we could reflect—going to the point of your discussion—eventually, perhaps, the coverage which we achieve through boosters. But at the present time we cannot because they are illegal and because we cannot compute them at the present. I imagine if they become licensed, we will compute them.

Mr. Moss. That booster coverage could become a very important factor in the claimed viewing audience of your station.

Mr. HOWELL. Yes, sir.

Mr. Moss. And if it became a substantial factor, you would undoubtedly revise your advertising rates to reflect it?

Mr. HOWELL. Yes, sir; we would, obviously.

Mr. Moss. That is only prudent management; is it not?

Mr. HOWELL. Pardon?

Mr. Moss. I say that is only prudent management; is it not?

Mr. HOWELL. That is right. At the present time some 30 percent of our viewers are achieved through boosters.

Mr. Moss. I thank the gentleman for yielding to me.

The CHAIRMAN. Is there anything further?

Mr. AVERY. I would like to remark to Mr. Howell that I have relatives living in his part of Colorado and I have visited there many times. I hope the programs on your stations are in keeping with the beauty of the western slope.

Mr. HOWELL. Fine. May I say that your relatives in Colorado would always be entitled to free television.

Mr. AVERY. I will check with them.

Mr. HOWELL. Thank you very much, gentlemen. I appreciate the opportunity of appearing here today.

The CHAIRMAN. Thank you very much, Mr. Howell.

I am sure at a later date, and during another Congress, obviously, you will no doubt have an opportunity to testify on the other phase of this highly important problem and highly controversial problem.

Your entire statement, with the information requested, will be included in the record.

Thank you for your presentation here today.
(The matters referred to follow:)

STATEMENT OF REX G. HOWELL, PRESIDENT KREX–AM–FM–TV; KGLN; KREY–TV

Mr. Chairman and members of the subcommittee, my name is Rex Howell. I am the owner and manager of two small market television stations, KREX–TV in Grand Junction, Colo., and KREY–TV in Montrose, Colo.

These stations provide the only source of television reception to an area encompassing approximately 15 counties of western Colorado and eastern Utah which are removed from all other television stations by an average of 200 miles.

Our stations are affiliated with all three national television networks and have full time interconnection facilities for our primary network service via the common carrier facilities of A.T. & T. microwave.

Our operation has been successful. We have met our relatively high cost of operation, and we have provided a metropolitan type of television service including a full-scale local live origination schedule of programs geared to the needs of our area. We are operating at a modest profit, and we are grateful for the opportunity to grow and serve in the traditional pattern of the American system of free television broadcasting.

Our stations is located in a city of about 20,000 people but we are privileged to serve an audience of approximately 100,000 people, several thousand of whom get their reception via the so-called booster stations.

Attached hereto is a map of the area served by our stations in the heart of the Rocky Mountains. You will note there are over 30 communities whose reception is dependent upon the use of these repeating devices to overcome the effects of the rugged mountain terrain. These communities all lie within the normal average coverage contours of our stations if we were situated in flat country; however, the mountains and plateaus that interlace our area create many natural barriers to direct television reception peculiar to the West. Hence, it is imperative that efficient, low-cost repeating devices be used; otherwise a substantial segment of our people will be denied television reception. The simplest and best method is to simply "neutralize" the mountain barrier by placing a low-power VHF booster on the mountain top to bend some of the energy down into the valleys which lie in the electronic shadow areas. These valleys which are precluded from line of sight reception from the TV broadcast station contain the farms, ranches and small towns where the bulk of our rural people live.

These people have met the problem on their own. In the absence of any specific rules by the FCC, they have constructed at their own expense the simple limited radiation devices known as boosters and with very low power; these boosters nonetheless provide clear reception, and without interference to any other service. When the FCC initially required the boosters to go to the expensive and inefficient UHF translators (which are totally unsuited to use in mountainous areas), the State of Colorado interceded on behalf of the booster-served communities and the Federal Communications Commission granted reconsideration.

Now it appears that the FCC believes it needs additional legislation in order to license these boosters for continued operation. If there is uncertainty with respect to the present authority of the FCC in this area of regulation, then it is proper that the agency (itself a creature of the Congress) should turn to the people's representatives in Government for direction.

There is urgent need for action at this session of Congress since the boosters are now operating under a limited period of grace.

There is another equally pressing problem which, if left unsolved, will also result in the loss of television service to many people, including many of those relying upon boosters whose sources of programs are the licensed television stations in many of the nonmetropolitan areas of the United States. There is a method other than the booster by which a limited number of people receive television in mountainous areas. It is known as a community antenna system or CATV. Since this method requires the use of coaxial cables to interconnect receiving sets in the homes to a remote receiving antenna, it is naturally a very costly method of providing reception. It usually involves an initially expensive installation plus a monthly rental fee. Obviously, it becomes uneconomical to operate CATV systems in smaller towns, as only concentrated population centers can justify the cost.

The larger towns which are wired for CATV do not provide service beyond the city limits. Thus the CATV is perhaps the least desirable of all repeating devices since its service is limited only to city residents and the rural people are left without service. The other significant factor is that in all cases reception by CATV is available only to those who can afford to pay for it. The CATV method has also created some additional problems which threaten disruption of the growth and development of television in its traditional pattern of free service in rural areas.

CATV is a form of pay television since the subscriber must pay the cable system a fee for all programs he receives despite the fact that these programs are broadcast initially as a part of the free service of commercial broadcasting.

CATV systems are not economically feasible in small communities as they are designed to serve large clusters of population. Less than a half dozen of these cable systems are in operation in Colorado. The rest of the people are dependent upon boosters and translators for service in the outlying areas of the State. CATV is therefore no substitute for the service now provided by boosters. In spite of this fact we have the anomaly in Colorado that licensing of boosters is opposed vigorously by the CATV operators.

It is most unfortunate that the operators of pay-TV have elected to oppose boosters. It is our belief that there is a place for all kinds of repeating devices which enlarge the availability of television reception to the people. The ultimate goal of American broadcasting is to provide, if possible, a choice of service to all the people wherever they may live. Thanks to the ingenuity of the people who have constructed these booster stations, at least one television channel is now available to the majority of the people in the State of Colorado despite the problems created by the rugged terrain over much of the State. S. 1886 in our opinion is a good bill. It would provide the legislative means for licensing VHF–TV boosters or translators, even where such construction has already taken place. The act now provides that a license will not be issued where prior construction has taken place. This is probably the only thing lacking in the present authority and responsibility of the Federal Communications Commission to deal with the licensing of boosters under some set of fair rules of operation and standards.

I have said that S. 1886 is a good bill. That is not to say that it is perfect. There are some significant omissions from the bill, which have been drawn in a separate measure by Congressman King of Utah. Personally I would much prefer to see the King bill added as an amendment to S. 1886 in order to avoid a piecemeal approach to the whole problem of licensing television repeater devices. As I understand it, the King bill would provide for the licensing of CATV systems under the standard of public interest, convenience, and necessity.

The problems of CATV and boosters are inseparably related. They serve similar purposes under different conditions.

It is our belief that CATV systems rightfully belong under the jurisdiction of the FCC. The Commission is charged with the responsibility for all non-Government communications, whether by radio or by wire connection, in the Nation. It is utterly fantastic that the CATV form of communication has been allowed to operate solely at the whim of its owners without regard to the effect upon the public interest. It seems patently clear that a system leasing common carrier circuits to deliver television programs originating in another State is certainly engaged in interstate commerce and, hence, should be subject to the regulatory power of the United States.

The CATV operators insist that programs once broadcast are in the public domain and hence can be used without regard to any inherent property rights, yet broadcasters desiring to rebroadcast the same programs for free reception are subject to all the multiplicity of rules and regulations including the requirement that consent of the originating station be obtained before making any such rebroadcasts.

Unregulated CATV can and has destroyed local telecasting service in some areas through duplicating the programs of a local station, thereby rendering the local station impotent in the eyes of national advertisers. This has destroyed the economic base upon which the local station is dependent.

If CATV were to come to my city, and succeed in eliminating our station, 36 communities dependent upon boosters operating off our signal would also be blacked out, as well as all the rural areas now receiving direct reception. Only those fortunate few residing in the city and with the economic means of paying a subscription fee would any longer be able to receive television programs of any kind.

This is not what the Congress envisioned for American broadcasting when the Radio Act of 1927 was framed, and when it was amended in 1934 to become the Communications Act as it is now constituted.

It is for this reason that I would like to see the King bill made a part of the legislation now under study by your committee.

The present bill will expedite the licensing of VHF boosters since it will eliminate two deterrents to such licensing by changes in those portions of the act relating to operator requirements and the starting of construction before licensing. The boosters obviously should be permitted to operate under a reasonable set of technical rules promulgated by the FCC under the prescribed rulemaking procedures. S. 1886 would thus enable the boosters to be operated without a licensed engineer on the premises at all times, and it would permit those booster stations which have already obtained sites and constructed towers, powerlines, and other facilities to qualify for a license.

The addition of the King bill would also place all repeating devices (including CATV systems) under the same statutory system. It would also make it incumbent upon the FCC in licensing CATV systems to apply the standard of the public interest to assure service to a maximum number of people, and that it would not be detrimental to the maintenance or establishment of a local broadcast service. This addition also would require prior permission to distribute the programs over a CATV system in the same manner in which a broadcaster must have prior authority to rebroadcast any program. This provision recognizes that a basic property right exists in all matter broadcast and that the use of same should be subject to prior approval by the owner. It also provides that CATV systems be required to carry the signal of the local station when so requested. We assume that this would put an end to the practice of some existing CATV operators in degrading the local station's signal to the competitive disadvantage of the local service.

The report previously issued by the Subcommittee on Communications in the Senate, in our opinion, covered all of these matters admirably. It is regrettable that the FCC did not seek to implement these recommendations immediately by rulemaking, rather than seeking new and time-consuming legislation; however, if there is reasonable doubt as to the scope of FCC authority, then the only remedy lies in legislative action. The report of the Senate committee offered suggestions which would permit all types of repeating devices to operate legally under the licensing provisions of the Communications Act and at the same time encourage the development of additional free TV stations in the markets comprising cities of less than 75,000 population. S. 1886 plus the King bill will make possible the achievement of these major objectives, provided that the FCC implements the legislation in accordance with its spirit. Like any other legislation in this field, this bill will ultimately achieve its objectives only if well administered.

The paramount issue must always be kept in focus, by whatever means are employed to meet the problems, and that issue is the public interest. It is this public interest which formed the keystone of the Communications Act in 1934 and is of no less concern to the Congress of today than it was to the original writers of the act.

Failure to act affirmatively on these matters can only result in loss of service to the public. Unregulated CATV systems will eventually drive small town television stations out of business, or seriously curtail their service through siphoning away network programs, film programs, national advertisers, and local advertisers. This will mean that television in many parts of the Nation will be available only to those favored few who are able to pay and live in areas of sufficient population to support the cable systems. The present practice of transmitting free programs to distant points to be sold by CATV systems to subscribers has undermined the Federal Communications Commission's own allocation table and is in direct contradiction to the spirit of the Communications Act. It not only poses a grave threat to the public interest but has already done nearly irreparable damage in thwarting and stunting the orderly growth of television broadcasting in many communities.

The Commission must act affirmatively with regard to licensing the boosters to avoid chaos. There is no question that the people of the United States want and deserve free television. They prefer to get it by legal means. The broadcast industry of the Nation is committed to the principle of broadcast reception without

charge to the listener and viewer. The use of boosters under proper regulation and licensing meets that criterion, hence broadcasters themselves are anxious to help in every way possible (including engineering service where needed) to assure satisfactory booster operations, once they become legal.

Broadcasters are not opposed to CATV per se. There are undoubtedly places where CATV can and does render a valuable service. Under proper licensing procedures there is no reason why this method of repeating device should not continue to find its proper place. It should not be permitted, however, to replace free television, but rather it should serve as a means when no free service alternative is possible.

We wish to make this point clear—that the future of free television rests ultimately with the total solution to the booster and CATV problem. If we small broadcasters of the West are forced to go into the community antenna business in order to survive, it will only be a question of time until other sections of the Nation will face the same problem. Every time a television transmitter goes dark due to the intrusion of CATV, a means of local expression has been destroyed, and the weapons of monopoly are forged. Theoretically, no TV stations are necessary if the needs of the rural and smalltown viewer are disregarded.

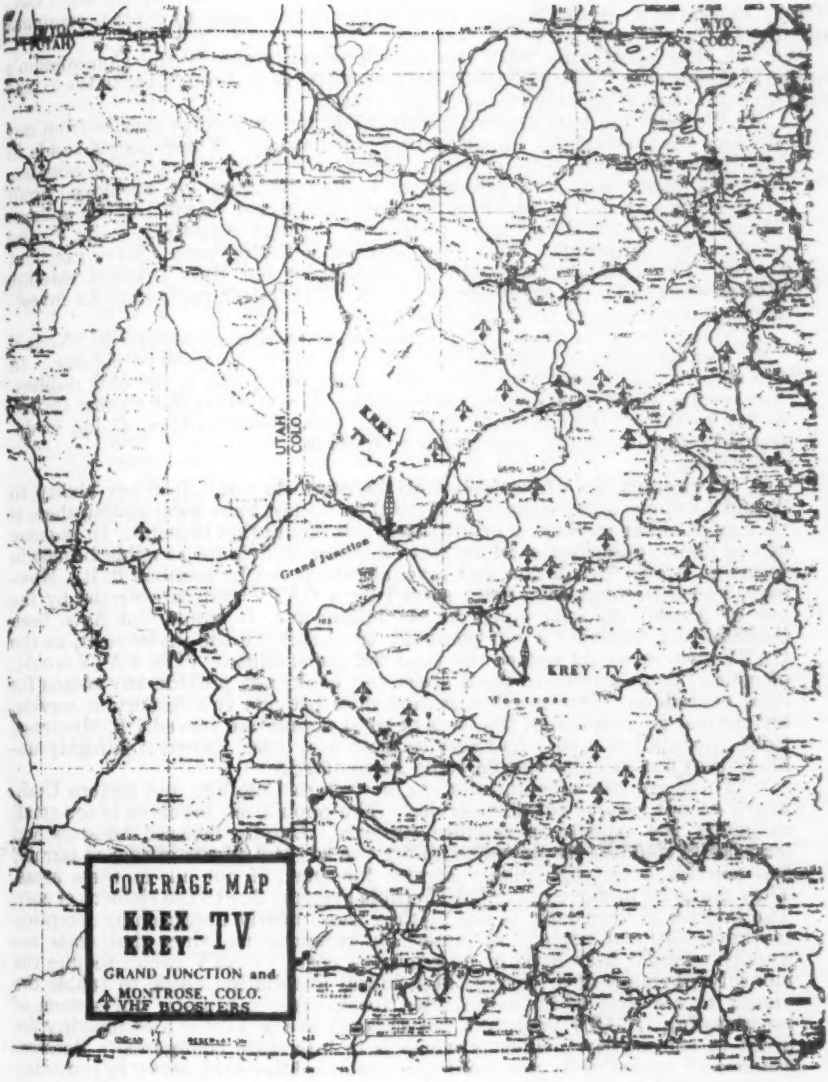
Every major city in the United States can be wired to receive cable television, and no stations of any kind are necessary, if that is the form television is to take. However, if our concern is for a truly nationwide service to all the people including those living in the sparsely populated areas of the West, we must do everything in our power to foster and develop local broadcasting in those communities capable of supporting it, and by means of boosters to those areas where a local station is an economic impossibility.

I think that the FCC should set up reasonable rules to that end which would protect local stations against the loss of their service through duplication by any repeating device including boosters, but which will foster and encourage the ultimate goal of making one or more signals by television available to every home in the Nation, and in the traditional pattern of free service upon which the American system of broadcasting has been built and under which it flourishes today as a system unmatched anywhere else in the world.

Mr. Chairman, I should like to have your permission to enter into the record of this hearing several items which I believe are germane to the considerations before the committee. They are:

1. A letter written by me to the FCC on June 2, 1958, in response to public notice G–59151 dated May 22, 1958, with the notation that the call letters KFXJ–TV referred to therein have since been changed to KREY–TV.
2. Comments which I filed before the FCC in the matter of the dismissal of rulemakin relating to amendment of part 4 of the Commission's rules (docket No. 12116).
3. Original comments filed by KREX–TV before the FCC in the above rulemaking (docket No. 12116).
4. A copy of a memorial to the Congress on the subject of booster stations passed by the Colorado Assembly in 1959.
5. A copy of a bill which I introduced in the Colorado Legislature this year which authorizes cities, towns, villages, and school districts in Colorado to construct and operate TV booster stations with certain public funds.
6. A letter written by me to the former chairman of the FCC on August 7, 1959, regarding statements attributed to him on the subject of TV repeating devices.

Mr. Chairman, and gentlemen, I thank you for the courtesies you have extended me here today. I only hope that my humble efforts may prove of some value to you distinguished Members of the Congress in your deliberations. Thank you very much.


WYO.
UTAH
WYO.
COLO.
UTAH
COLO.
KREX
TV
Grand Junction
KREY-TV
Montrose
COVERAGE MAP
KREX
KREY-TV
GRAND JUNCTION and
MONTROSE, COLO.
VHF BOOSTERS

KREX,
Grand Junction, Colo., June 2, 1958.

Subject: Public notice G–59151, May 22, 1958.

FEDERAL COMMUNICATIONS COMMISSION,
Washington, D.C.

GENTLEMEN: The Western Slope Broadcasting Co., Inc., licensee of television stations KREX–TV, Grand Junction, Colo. and KFXJ–TV, Montrose, Colo., hereby expresses its desire to avail itself of the opportunity to express comment relating to the above-titled public notice.

We will deal specifically with the questions contained in the Commission's notice in the order in which said questions appear (pars. 1 through 14) to the extent said questions are applicable in our own operation.

1. We estimate that approximately 2,500 people receive service from our stations via method (b) (unauthorized translators). These people reside in highly mountainous terrain where direct reception is poor or impossible. In most cases very low powered cochannel boosters are employed from strategic mountaintop locations to reflect the signal down into the valleys. Many of these amplifiers were purchased through donations made by the viewers into a common fund. An additional 24,060 people have excellent quality TV reception available to them from our duly licensed satellite station (method (d)) at Montrose, Colo. The latter represents an investment to our company in excess of $25,000.

2. Our answer to the questions contained in this paragraph is "None."

3. Our situation is probably not relevant to the purpose of inquiry. In the majority of the communities listed under paragraph 1, the only duplication results where direct reception is available from either our mother station or its satellite. The possible exception, Glenwood Springs, Colo., is described in greater detail later in our comments.

4. None.

5. At present the above described boosters do not affect our ability to obtain revenues and programs. Since they do not have legal status, there is no way of either measuring or utilizing their circulation benefits. In the case of the above described satellite station, there is definite tangible benefit in terms of known circulation and revenue which can be ascribed to it. However, had this community been served by a CATV system operated by the use of distant stations piped in via microwave, it would not have been economically feasible for our company to undertake the investment, as the CATV system would reduce the need for the satellite. (The CATV would, of course, deny service to rural areas and could not provide any means for local expression. Our satellite station does provide this important service, but derives its support on the basis of total population served. If Montrose, Colo. (population 4,964) had service from any other source it is highly unlikely that our satellite station could be justified.)

6. There are still substantial areas of western Colorado and eastern Utah, which do not receive suitable service. The population involved is too small to justify the expense of satellite stations. Legally licensed boosters and translators could be employed to nullify the adverse effects of rugged terrain, and provide a suitable quality service for most, if not all, of these areas. They are to be preferred over CATV cable systems due to the element of cost. The booster or translator is the method most nearly approaching reception in the traditional pattern of American broadcasting, since first costs are usually nominal with little or no recurring costs. CATV cables require the monthly payment of a fee plus high initial installation costs, to enable the viewer to see that which is intended for his free use under our system of broadcasting. CATV operators are engaged in the sale of a commodity for profit (a commodity incidently which is in interstate commerce). Boosters are usually operated by nonprofit associations, interested solely in providing service to the people at little or no cost.

7. We admit to some prejudice upon the points raised in this question. Perhaps it would be well for us to state the basic philosophy which we hold with respect to the merit and purpose of each of the systems mentioned, in the order in which we believe there is an incumbent public interest. We believe the Commission should consider all the factors involved to make a determination which of the following services should apply, and that all services should come directly under the authority of the FCC, as the duly authorized administrative agency to exercise the regulatory power of the United States.

1. Standard television station: The highest order of public interest is served by one or more standard television stations, where they can be economically justified. In this connection, may we add that one standard television station is to be preferred over two or more when it is obviously impossible for the population of the area to be served to comprise a sufficient market to provide the minimum economic base for a healthy operation. This does not involve protection against competition. This involves protection of the public interest against forces of economics destructive to maximum service.

2. Satellite station: The satellite station as defined by the Commission in the above public notice is the second choice in scope of service to the public. Where a standard station is not economically justified, one or more satellites may be given consideration provided they do not represent a deterent to the establishment of a full scope standard station, and satellites should be encouraged to augment their service to such scope as quickly as practicable. The Commission might very well consider this point when renewing a satellite license.

3. Translators and boosters: Since the applicability of translators (UHF) and boosters (cochannel) or perhaps in some cases VHF translators is subject to local conditions of terrain and certain engineering conditions, we have grouped these stations into one category. They serve a very useful purpose in instances where it is not possible to construct and operate standard stations or satellites. They should therefore be licensed only if it is impossible to provide either standard stations or satellites, and their license renewal should be predicated upon a continuation of this express condition.

4. CATV systems by direct pickup: The community antenna system which picks up a signal at a favorable location and connects to the viewers' homes by cable also serves as a final alternative, when none of the above-listed methods are available. Since such systems generally involve the payment of fees, and consequent sale for profit of programs normally available free to the general public in areas served directly by the above-listed alternative systems, the Commission should fix the conditions under which such systems may operate since they are engaged in retransmission of broadcasting. One of the conditions might well be the requirement that specific authority be granted by the originating station (and/network) in the same manner prescribed under the existing rules relating to rebroadcasts.

5. Interstate systems involving the use of microwave or other systems of multiple relay in which signals of one or more standard television stations are transported to be sold to subscribers at a point beyond the normal range of the originating station.

This type of system should be regulated by the Commission as a common carrier engaged in interstate commerce. We believe the Commission should give serious consideration to the economic impact of such systems upon the future of broadcasting as we know it today. The ability to sell a competitive service for profit into the same community in which a licensee is trying to maintain a service in the traditional pattern of free broadcasting raises some questions of grave concern to the administrative agency charged with the responsibility of protecting the people's interest. When such direct competition with broadcasting is carried on without any exercise of regulatory authority, the failure to act affirmatively to establish and enforce the proper authority becomes a threat to free broadcasting, and does, in fact, create monopoly by the contrasting conditions under which these competitors operate. The common carrier type of CATV system is unquestionably under the jurisdiction of the FCC today, under the Communications Act as amended. No new laws are needed to enable the Commission to establish the rules under which such systems can operate in the future. Such rules should be carefully drawn with the public interest as the prime consideration. Possibly, since such systems are generally regarded as the forerunners of pay TV, the Commission might well consider the divorcement of this type of system from free broadcasting entirely, including the prohibition against the use of rebroadcast signals of free television programs for the purpose of engaging in direct competition with any of the above listed alternative methods of free broadcasting. This restriction could be waived until such time as any one of the above alternative systems became available.

8. Yes. The Commission could very well distinguish justifiably as between the availability of service as listed in the order of their public importance in paragraph 7.

9. The FCC is charged with the responsibility of providing a nationwide system of free television. It would not be in the public interest to deny any service for even a few in order that more fortunately located city dwellers may have multiple services. This becomes a form of involuntary class distinction and would have the effect of abrogating the spirit of the Communications Act. This is one of the reasons why CATV, boosters and translators, are not coequal in their respective relationship as above outlined. The ability to serve maximum numbers of people forms the difference. Obviously a satellite station will cover more area than a low powered booster or translator. By the same token even the booster and translator are capable of reaching out beyond the city limits. The cable system operates only within the concentrated population area (where it is profitable).

10. In order to qualify for near equal consideration the CATV system would have to make a showing before the Commission of its plans to extend into the rural areas as well as the city. Standards of technical quality should be established in each case to follow the general pattern now established, including freedom from interference to existing services and reasonably linear response to assure a minimum of degradation to the signals' quality from the original telecast. In each case the Commission should require prior consent of the originating station and network.

11. The regulatory power over all forms of communication other than the military services is inherent in the law under which the Federal Communications Commission was created by the Congress of the United States. This is an exclusive Federal domain. This power cannot be assumed by the States or lesser subdivisions of Government.

12. It is within the purview of the Commission to examine the nature of the material to be transmitted over any common carrier. It is also within the present authority of the Commission to establish regulations relating to broadcasting. If the public interest is affected (as it undoubtedly is) in the transmission of television programs over a common carrier for purposes of engaging in a competitive method of broadcasting, it is not only the right but the duty of the Commission to exercise its proper authority in this field.

13. The "economic injury" argument is old and without specific determination. In 1926 when our company had its humble beginning we were required to prove to the Federal Radio Commission that our community could support local broadcasting. Under the engineering standards then in use, there was already a shortage of available broadcast frequencies for distribution to cover a nationwide system of radio, and part of the criteria for determining the public interest was the economic strength of the community to provide support for broadcasting. Applicants are still scrutinized as to their financial qualifications before a license is issued. Does not the ability to remain economically sound have a bearing upon the continued qualification of financial ability? At times in the past the Commission has ruled that economic factors cannot be considered, and later this view was reversed, even to the extent of permitting a newspaper to intervene in a hearing on the grounds of economic injury.

If economic injury to a TV station results in altering the licensee's ability to serve its public, it most certainly is a valid public interest justification for the Commission to fully examine the problem, and act in accordance with what appears to best serve the public interest.

14. We respectfully ask that the above comments be regarded as our opinions, and in such cases as it would appear to be presumptive in the manner in which we have set forth these views, please regard them as having been presented in this manner only because of our desire to emphasize what we hold to be stanch convictions. If it becomes apparent that the members of the Commission differ as to the specific authority now conveyed by the Commissions Act, it will then be necessary to seek legislative remedies. We do honestly feel, however, that the authority is already present for the Commission to establish immediate jurisdiction and begin rulemaking procedures. The writer is a broadcaster—not a lawyer, and certainly susceptible to error in his legal opinions.

Earlier a reference was made to the community of Glenwood Springs. Since this comprises a case history of booster operation which is relevant to some of the issues involved we beg leave to insert this additional comment.

Glenwood Springs, Colo., is located about 70 airline miles from Grand Junction. but is shielded from direct reception by high canyon walls. Eight miles from the community KREX-TV provides a good signal at a mountaintop location. We have long been interested in serving this community, primarily because of strong interest in it through affiliated ownership of the daytime radio station in Glenwood Springs. Since many people of that community have looked to us for guidance in planning for eventual TV reception we have maintained a close contact with developments. When the Governor of Colorado issued his dubious authority to communities to built and operate their own boosters, we declined to take any part in such planning and construction on the grounds that as a licensee we would be in jeopardy, as would our licensed engineers. If we participated in illegal communications of any kind. The writer appeared before local groups and explained the steps which could be taken legally; the establishment of a satellite station, a licensed UHF translator, or a CATV system linked by coaxial cable. The satellite and CATV system were not economically feasible at the time. The UHF translator would not meet the problems of engineering conditions posed by the nature of the terrain. Our failure to follow through on a booster plan left the community no alternative except to employe someone else to build them an illegal booster. Our insistence upon compliance with both the spirit and the letter of the law was interpreted by certain people in the community to be a lack of interest on our part. When the booster was constructed it was not used to amplify our singal, but was used in cascade with a string of such boosters, resulting in the transmission of an out-of-State signal into the area. Furthermore, the out-of-State signal was cochannel boosted on channel 5, the assignment made to KREX-TV under the Commission's sixth order allocation table.

The result is, today our signal is being subjected to interference, at the points near Glenwood Springs where it would normally be available, by one or more of the illegal boosters. We could not possibly provide a service of any kind today due to this interference. Our interest in the community continues unabated, but we are caught in a combination of circumstances which will not be solved until the Commission exercises its authority and establishes a set of standards for booster operation. If and when a legal booster can be placed into service, we stand ready and willing to do so at our own expense, for the benefit of that community.

We are grateful for this opportunity to provide comments on the subject of the notice of inquiry by the Commission for factfinding purposes.

Respectfully,

WESTERN SLOPE BROADCASTING CO., INC.,
By REX G. HOWELL,
President and General Manager.

BEFORE THE FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D.C.

DOCKET NO. 12116

Comments In the Matter of Dismissal of Rule Making relating to Amendment of Part 4 of the Commission Rules and Regulations to permit operation of Low Power Television Broadcast Repeater Stations

The Western Slope Broadcasting Company, Incorporated, having availed itself of the opportunity to file comments on the original matter of the above docket, begs leave to introduce the following comments as exceptions to the views expressed by the Commission majority in the Report and Order of the Federal Communications Commission on December 31st, 1958, related to the above styled matter.

The Commission by its action has summarily dismissed a matter of great importance without formal hearing of any kind. (An informal hearing was conducted by Commissioner T. A. M. Craven in Colorado in 1957, during a field investigation by Commissioner Craven of the "booster" problem. It will be noted that Commissioner Craven did at that time recommend that VHF boosters be treated as limited radiation devices and that the Commission should assert its jurisdiction ONLY if such booster operations became a source of interference to ANY other service.) This recommendation was so sound that most people concerned with the problem felt it would unquestionably be adopted by the Commission as a whole, hence requests for a formal hearing were deemed unnecessary.

By dismissing the Rule Making Proceedings, the Commission has in effect drawn conclusions without adequate field tests, as well as denying those aggrieved by the ruling, any opportunity to present more than the informal evidence contained in the comments filed by written statement.

The Commission has by its action placed the entire burden of engineering proof upon the users of booster service and has rejected such information as was thus filed as being inadequate. The Commission has not taken full cognizance of its own responsibility to assist in the study of technical means of preventing undue interference, insure stability, and the other factors which the Rule Making sought to determine.

The Commission has further placed an impossible burden upon those now relying upon these boosters as their *sole* source of television programs by requiring the change to UHF translators in the short space of ninety days. Many of the locations used in Colorado for mountain top installations of boosters can be reached only by travel on snow shoes prior to mid-June of this year. The Commission is thus in effect forcing the complete loss of television service to many mountain bound communities and farm areas of the State of Colorado; as well as other western states.

With respect to the allegations contained in paragraph 5 of the above Report and Order the respondent feels it incumbent to deny any validity thereto with respect to the asserted comments of:

1. National Community Television Association and Individual community antenna operators.

2. "Educational groups," as mentioned in said paragraph 5 of the Report and Order.

It is natural to assume that the operators of community antenna installations should oppose VHF boosters or translators and favor the UHF, for the reason that low-cost VHF boosters and translators pose an economic threat to CATV operations, since in the majority of cases the booster provides a nearly cost-free service to the public, whereas CATV (Community Antenna Television) operators are engaged in selling the same programs at a profit. Since UHF is far less reliable than VHF in mountainous terrain,[1] the competition to CATV shall be lessened if the Commission insists on the former.

There is no evidence of any educational channels having been usurped through the use of VHF boosters and translators. A moment's reflection about the economics of television will quickly dispel this complaint. No community in which boosters or translators are needed for television reception is of sufficient size to support a regular television broadcast service either commercial or educational.

There are no more instances of interference from boosters or translators operating in the VHF spectrum than those recorded through the use of community antenna cable systems. The Commission has elected to treat the CATV systems as beyond its jurisdiction. We submit that each (boosters, CATV and translators), serve a like purpose, and the denial of a formal hearing has in effect given unwarranted credence to the protestations of the National Community Antenna Association.

It should further be noted that "marginal service" as referred to in paragraph 7, is certainly preferable to the complete denial of television reception.

It is regrettable that American equipment manufacturers have failed to assist the Commission in its studies of the feasibility of low-powered VHF boosters and translators. It would appear that the ingenuity of our manufacturers is somewhat eclipsed by that of our Canadian neighbors. Of course, there is relatively low profit to be derived from such equipment, especially when compared to costly Community Antenna installations.

It would appear to the respondent that the Commission should extend the deadline for compliance pending a further study and possible new Rule Making procedures; That a formal hearing be scheduled to conform to Commission practice in all matters wherein the public interest is at stake; That an invitation to submit

[1] This is in exception to the conclusions stated in paragraph 7 of the above Report, as there is ample evidence to show that UHF signals are incapable of bending. A community such as Glenwood Springs, Colorado, surrounded by mountains cannot possibly receive UHF signals from any point where a standard TV station can be received, yet a VHF translator eight miles distant provides a usable signal with less than one watt of transmitter power. The VHF translator merely nullifies the presence of the mountains and diverts a small amount of energy downward into the canyons from a peak over ten thousand feet above sea level where a signal intensity of over two hundred microvolts is present from the transmissions of KREX-TV Grand Junction. This VHF translator was built in Canada, and is of the type in common use in mountainous areas of that country. It was financed by public subscription and is operated by the Rural Electric Administration Co-operative who also has other radio equipment at the site. If necessary the unit can be disabled during non-transmitting hours through the use of a stepping relay.

technical data be extended to American and Canadian equipment manufacturers, and that the Commission make use of its own field engineers in further and more extensive field test of the engineering problems associated with the use of UHF in mountainous areas, and comparative tests with low-power VHF translators or cochannel boosters.

Respectfully submitted, January 12, 1959.

WESTERN SLOPE BROADCASTING COMPANY, INC.,
By REX G. HOWELL, *President.*

BEFORE THE FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D.C.

DOCKET NO. 12116

In the Matter of Amendment of Part 4 of the Commission's Rules and Regulations to Permit the Operation of Low Power Television Broadcast Repeater Stations

COMMENTS IN SUPPORT OF PROPOSED AMENDMENT

Reference is made to the above entitled notice of proposed rule making.

The Western Slope Broadcasting Company, Inc. Licensee of KREX–TV Grand Junction, Colorado, and Permitee of KFXJ–TV, Montrose, Colorado, begs leave to submit the following statement for the Commission's consideration in connection with the proposed amendment to the Rules.

1. Western Slope Broadcasting Company, Inc. has operated Channel Five at Grand Junction, Colorado, since May of 1954. Channel Ten at Montrose has been in operation approximately one year. Extensive field measurements have been taken and a general observation has been made with respect to the effects of the mountainous terrain upon the coverage pattern of each of these stations. We have found that the same terrain which destroys uniformity of coverage due to the obstacles of high peaks and ridges very often produces the phenomena of delivering extremely strong signals in a very narrow path into an area which does not receive the signals at elevations other than the critical one. As an example the signals of KREX–TV are receivable at a point one hundred ten airline miles away from the transmitter with adequate strength to provide a snow free picture. This reception is limited, however, to a path only a few yards wide. Since there is a high mountain range between the reception point and the station, it can only be assumed that the "knife edge" effect of the cliffs along the mountain rims is resulting in a reflected signal, which is highly directional.

Fortunately the strong signal is received within a short distance of several well populated communities which otherwise have NO television reception whatsoever. Under the proposed amendment to the rules, an on-channel booster would make it possible for every family in the community (Vernal, Utah) to receive the service now restricted to a few.

2. Other examples closer to the transmitter are Rifle, Colo.; Colbran, Colo.; Grand Valley, Colo.; Glenwood Springs, Colo.; Paonia, Colo.; and many other towns situated in highly mountainous sections, but within the range of our transmitter, if it were not for the topography. In each instance, however, the signal is strong and reliable at the top of nearby mountains. A low power booster would merely serve to neutralize the natural obstacle of the mountain, and thus provide service into communities otherwise denied service.

3. The nature of the terrain is such that UHF signals would hardly be adequate, since some of the communities are situated in narrow canyons or are surrounded by high peaks from which the problems of ghosting would be made manifold by the propagation characteristics at ultra high frequencies.

4. Low power boosters, properly licensed and operating under standards consistent with the need for protection against undue interference to other services and/or other existing television stations, would aid us materially in discharging our responsibilities to serve our people in the traditional pattern of FREE television.

5. We believe the standards as proposed by the Commission in it's notice of Rule Making are both adequate and fair. Our Company stands ready to assist any community with engineering counsel and other aid, should it become possible for such community to legally operate a booster station. We cannot condone illegal operation, and we refuse to take part either directly or indirectly in the planning, servicing or operation of boosters prior to the licensing of the booster by the Federal Communications Commission. We hold that it is the EXCLUSIVE

prerogative of the FCC to exercise jurisdiction over nongovernmental communications. This position has been misinterpreted by some communities of western Colorado, resulting in a loss of goodwill by our stations. The people of these communities have been of the belief that we were not interested in helping them solve their TV reception problems due to our refusal to grant authority to retransmit our programs over boosters now operating in defiance of federal law. If the Commission acts favorably on the proposed amendment, we shall have our opportunity to demonstrate our deep-seated interest in the problem, and our earnest desire to help. We will not deny ANY LEGAL booster the right to retransmit our programs.

6. We fully support the proposed amendment in all particulars and earnestly petition the Commission for favorable action at the earliest possible date.

Respectfully submitted this — day of ———.

WESTERN SLOPE BROADCASTING COMPANY, INC.,
REX G. HOWELL, *President.*

HOUSE JOINT MEMORIAL NO. — BY REPRESENTATIVE HOWELL

JANUARY 9, 1959

Memorializing the Congress of the United States to take such remedial action as deemed necessary to preclude the closing of low power booster stations necessary for television reception in certain areas of the State of Colorado

Whereas there are many communities and farm areas within the State of Colorado whose people depend upon low power booster stations as their only means of receiving television programs; and

Whereas the rugged terrain of the Rocky Mountain region makes the use of ultra high frequency translator stations impractical, if indeed not impossible, according to the opinions expressed by completent and qualified broadcast engineers, as well as by certain members of the Federal Communications Commission; and

Whereas it is economically impossible for these communities and farm areas to support, construct, or operate any other form of duly authorized television service; and

Whereas there is ample proof that low power booster stations can be regulated so as to preclude interference with licensed television services or other services; and

Whereas the Federal Communications Commission did summarily dismiss, without formal hearing, its own rulemaking proceedings relating to "repeater" or "booster" stations operating in the VHF television band of frequency assignments; and

Whereas the Federal Communications Commission did on December 31, 1958, make formal announcement of its dismissal of petitions for reconsideration, including those filed by Governor Stephen L. R. McNichols of Colorado; the Honorable Edwin C. Johnson, former Governor and United States Senator from Colorado; and the Honorable Gordon Allott, United States Senator from Colorado—all of whom sought to procure reasonable rules which would permit the continued operation of said booster stations under the regulatory power of the federal government; and Whereas the Federal Communications Commission did also announce on December 31, 1958, that all booster stations would be given a period of ninety days in which to apply for conversion to ultra high frequency translators or some other authorized television operation, and upon failure to do so would be ordered to case operation: Now, therefore, be it

Resolved by the House of Representatives of the Forty-second General Assembly of the State of Colorado, the Senate concurring herein:

That this General Assembly hereby memorializes the Congress of the United States for such remedial action within such ninety day period as the Congress deems fit through the exercise of its authority over the Federal Communications Commission to insure the continued operation of low power booster stations, to the end that the people in the non-metropolitan areas of the State of Colorado shall not be denied their basic right to equality of access to the informational, educational, inspirational, cutural, and entertainment service of the American system of free television broadcasting; and be it further

Resolved, That a copy of this Memorial be transmitted to the President of the Senate and the Speaker of the House of Representatives of the Congress of the United States, and to the Senators and Congressmen representing the State of Colorado in the Congress of the United States.

SECOND REGULAR SESSION, FORTY-SECOND GENERAL ASSEMBLY, STATE OF COLORADO

BY REPRESENTATIE HOWELL: HOUSE BILL NO. 72, LOCAL GOVERNMENT

A Bill for an Act

AUTHORIZING COUNTIES, CITIES AND COUNTIES, CITIES, TOWNS, VILLAGES, AND RECREATIONAL DISTRICTS TO CONSTRUCT, OWN AND OPERATE TELEVISION RELAY OR TRANSLATOR FACILITIES

[Capital letters indicate new material to be added to existing statute; black brackets indicate deletions from existing statute]

Be It Enacted by the General Assembly of the State of Colorado:

Section 1. 114–1–1, Colorado Revised Statutes 1953, is hereby amended to read:

114–1–1. *City or county may own and operate.* Any city, town, village, or county may own and operate public recreation facilities, [and] playgrounds AND TELEVISION RELAY AND TRANSLATOR FACILITIES; acquire, equip and maintain land, buildings or [other recreational] facilities either within or without the corporate limits of such city, town, or village; and expend funds therefor and for all purposes connected therewith.

Section 2. 114–1–2, Colorado Revised Statutes 1953, is hereby amended to read:

114–1–2. *School district may own and operate.* Any school district may operate a system of public recreation, and playgrounds, AND TELEVISION RELAY AND TRANSLATOR FACILITIES, and may exercise all other powers enumerated in the precedings ection.

Section 3. 89–12–14(4), Colorado Revised Statutes 1953 (Supp.), is hereby amended to read:

89–12–14. (4)(a) To enter into contracts and agreements with any person or corporation, public or private, affecting the affairs of the district, including contracts with [municipalities] CITIES, TOWNS, VILLAGES, COUNTIES OR SCHOOL DISTRICTS, the state of Colorado or the United States of America and any of its agencies or instrumentalities. A notice shall be published for bids on all construction or purchase contracts for work, material, or both, involving an expense of five thousand dollars or more. The district may reject any and all bids, and if it shall appear that the district can perform the work or secure material for less than the lowest bid, it may proceed so to do.

(b) TO OPERATE A SYSTEM OF TELEVISION RELAY AND TRANSLATOR FACILITIES IN ADDITION TO OTHER RECREATIONAL FACILITIES PROVIDED BY THIS ARTICLE, AND TO USE, ACQUIRE, EQUIP AND MAINTAIN LAND, BUILDINGS AND FACILITIES THEREFOR.

Section 4. *Tax limitations not to apply.* Any tax levy for the purposes of this act shall not be within the limitations prescribed for any county, city, city and county, town, village, or county, school district, or recreational district.

Section 5. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

KREX,
August 7, 1959.

Hon. JOHN DOERFER,
Chairman, Federal Communications Commission,
Washington, D.C.

DEAR COMMISSIONER DOERFER: I wish to express my sincere gratitude for the interest you have shown in the problems arising out of the use of various repeating devices for the extension of television broadcast coverage. The assignment of Messrs. Cowgill and Sheridan to a field survey will undoubtedly be most helpful. Also, it was most considerate of you to have Commissioner Hyde confer with broadcasters and repeater operators in Wyoming this week.

As a result of these conversations, and the assessment of the results of the recent Senate subcommittee hearings, along with the exchange of correspondence with you on this subject, I have come to some newly modified conclusions, which I wish to set forth for whatever value they may have in the future consideration of the problem.

1. Neither broadcasters nor repeater operators have any right to expect the Commission to referee economic disputes.

2. The public interest is, has always been, and must forever remain the paramount criteria for Commission action.

3. There is an area of interest to the public as a whole in which the Commission can and should function which will result in maximum service to the public and without working acute hardship upon either the broadcasters or repeater system operators.

I should like to offer a detailed plan covering the above point 3, which may or may not require any further legislation to implement it.

The ultimate goal of the American system of broadcasting as envisaged in the Communications Act is to serve the people with a complete nationwide television service, preferably with multiple choice of programs. The inherent nature of television due to the limitations of frequency allocations, propagation characteristics, and the effects of topography upon station coverage, plus basic economic considerations makes it mandatory that certain forms of repeater devices be used, if all the people are to receive television broadcast service.

The choice of type repeater employed is also affected by these same factors above described.

The people should be permitted to exercise the choice, provided this choice does not impinge upon the public interest, convenience, and necessity, as determined by the Federal Communications Commission, the duly authorized administrative agency of the U.S. Government.

In order to assure the orderly development of these services, they must come under the general supervision of the FCC to the extent of allocating frequencies, power assignments, and other technical considerations in the licensing of—

(*a*) UHF translators.

(*b*) VHF translators.

(*c*) Microwave systems, where the same are used to serve any type of repeating device including cable systems of distribution known as CATV.

The Commission through the exercise of its own rulemaking powers has already set up standards for UHF translators, and has taken certain action looking toward complete rulemaking in the other two areas as well.

If the basic premise is accepted that maximum service including maximum choice of program selection is desirable there is a minimum of conflict, and that which does exist can be easily resolved without loss of service to the public.

The danger which exists today is the fact that repeater service may become a complete substitute for local broadcasting service in some areas, which results in depriving the public of valuable service. If the local broadcasting station is supplanted by multiple choice service via repeaters or CATV it may result in the complete loss of rural service due to the limitations of coverage available from the repeating devices. There is also the loss of a means of local expression.

The question lies in determining the extent to which local service is threatened by use of repeater devices.

The principal conflict arises when the repeater device becomes a means to totally circumvent the local station. This problem becomes acute when the programs normally available to the public via the local station become duplicated on the repeater device.

If repeater devices were limited to augmentative service to the public the impact would be materially reduced.

In other words, if translators, CATV or any other repeating devices were limited to providing new and additional service to the community, the erosion of the economic base of local broadcast service would be materially reduced, and the program suppliers such as networks, film companies, and others would no longer find their contracts abrogated by unauthorized use of their products.

Since the Commission authority would prevail only where use is made of the spectrum, community antenna systems taking a direct signal from the air for wired distribution would not be affected. Only if they engage in interstate and/or intrastate transmission of programs via radio channels would they fall under the jurisdication of the FCC.

A CATV or TV transmitter using microwave facilities to transport signals for its use will require either licensed facilities of its own or the use of facilities licensed to a common carrier. In either case the composition of the traffic is determined by rules of the Commission.

Under such a plan (by broadening its own rules relating to network exclusivity) the Commission could forbid the duplication of programs being broadcast, or contracted for broadcast by a local station, within that station's coverage area, by any microwave-fed repeater device.

There would be absolutely no loss of service to the public. The restricted program would be available via the local station. If the CATV people wished,

the signal of the local station could be fed into the system for the convenience of the cable subscribers.

Other minimum rules relating to the use of the TV spectrum of course would also be developed by the Commission. This would enable the people in remote areas where terrain factors make direct reception impossible to continue to use boosters and translators under the authority of the Commission, as the public interest showing in this field has pretty well been established.

There is no doubt a great deal of merit in the claims of community antenna operators that they are not engaged in broadcasting when they serve in the traditional pattern, that of providing a common antenna at a strategic point for improved reception to the viewers. It is only when such systems use the spectrum to relay these signals that a totally new form of service takes place. It is then that the CATV becomes a compelling broadcast medium, since they give away the only commodity broadcasters have to sell, namely the advertising. A network advertiser will not order the local station if he can achieve at least partial coverage via CATV at no cost. Neither will the local advertiser buy a film which is not exclusive to his local use. Thus, when programs are duplicated the local station suffers loss of revenue at both the national and local level.

CATV and boosters can and do render a valuable service to the public by providing multiple choice of programming, and while this may dilute the local station audience, this is in no wise unfair competition, provided that the repeater system does not duplicate the local station's programs. The exercise of consent for retransmission would be a simple matter under such a plan, where the only prohibition is against duplication.

I also believe the Commission should waive duopoly rules where a showing in the public interest is made, to enable broadcast licensees to also operate boosters for the purpose of providing free service to the public of those programs which the limitations of time precludes them from scheduling on the station's regular facilities. This too would be in recognition of the desirability of multiple choice, even though economics mitigate against the establishment of a second or third station in the market.

In summary, let me say that I subscribe wholly to the philosophy that free competition is healthy when it results in additional benefits to the public. The regulatory power of our Government is for the purpose of protecting the public interest, not private interest. There is no unreasonable restraint placed upon any business in this proposal, and there is no denial of service to the public. To the contrary such a plan would foster the growth of more services for the public.

In my own humble opinion as a layman, no additional legislation would be needed to place such a plan into effect; however, you are far better qualified than I to judge that point.

This plan is not original. It is a composite of views expressed by both broadcasters and repeater system operators, plus the sound counsel of members of the Commission, and the opinions expressed by Members of the Congress.

I would welcome your evaluation of it.

Respectfully,

REX G. HOWELL,
President, Western Slope Broadcasting Co., Inc.

The CHAIRMAN. The next witness is Mr. Harris M. Thomason. Mr. Thomason, you have a very good first name

STATEMENT OF HARRIS M. THOMASON, WASHINGTON STATE TV REFLECTOR ASSOCIATION, ARDENVOIR, WASH.

Mr. THOMASON. I thank you. That was my grandfather's last name. He was from Missouri. That is close to your State at any rate.

The CHAIRMAN. I think you should identify yourself for the record. I believe you are with the Washington State TV Reflector Association?

Mr. THOMASON. That is correct, and representing the boosters in the State of Washington.

The CHAIRMAN. Is it your understanding that the terms used of "reflectors", "repeaters", and "boosters," are synonymous and mean the same thing?

Mr. THOMASON. We used both terms—"reflector" and "booster"—when we set up our State organization, and we argued the thing back and forth to quite some an extent as to which would sound the best. But, they are the same thing.

The CHAIRMAN. I thought so. However, since those terms are used frequently, I wanted the record to show that they were intended to be the same thing.

Mr. THOMASON. That is right. As far as we are concerned they mean the same thing.

I have some letters, Mr. Chairman, which if I may, I would like to have introduced into the record.

The CHAIRMAN. Very well. I think you should identify them.

Mr. THOMASON. They are letters from the following people: The Wenatchee Chamber of Commerce, the East Wenatchee District Chamber of Commerce, the town of Pateros, signed by the mayor; the town of Brewster, signed by the mayor; the town of Mansfield, signed by the mayor; the city of Leavenworth, signed by the mayor; the People's TV Association, of Soap Lake, Wash.; a letter signed by the Honorable Charles L. Hoglund, and a letter from the Entiat Valley Chamber of Commerce.

The CHAIRMAN. Very well, they will be included in the record at this point.

(The letters referred to follow:)

WENATCHEE CHAMBER OF COMMERCE,
Wenatchee, Wash., June 4, 1960.

Re S. 1886.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

GENTLEMEN: The legislative committee of the Wenatchee Chamber of Commerce asks for your approval of amendments to the Communication Act of 1934 as set forth in S. 1886.

Many hundreds of people in the mountain terrain of north-central Washington are entirely dependent upon stations that rebroadcast the signals of television stations.

Your favorable consideration would be greatly appreciated by the people of this area.

Very truly yours,

GLENN A. WOODS, *Executive Director.*

EAST WENATCHEE DISTRICT CHAMBER OF COMMERCE,
East Wenatchee, Wash., June 1, 1960.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: May I add the voice of the East Wenatchee Chamber of Commerce to the many thousands of others who live in the sparsely settled and mountainous regions of this United States in favor of Senate bill 1886 to amend the Communications Act of 1934.

This bill would permit the Federal Communications Commission, under certain conditions, to waive the requirement of a permit for construction for a station that is engaged solely in rebroadcasting signals and was constructed on or before January 1, 1959.

It is the understanding of the chamber of commerce that this proposed enactment would make it possible to legalize the numerous low-wattage television rebroadcasting transmitters. There are many of these low-wattage television rebroadcasting transmitters now in operation in the remote and mountainous areas of the United States particularly in the Western States. They serve the purpose of bringing television to these remote and sparsely settled areas which are not within the reach of existing television stations.

The chamber of commerce feels that the Senate bill 1886 on which the House will hold hearings June 6 and 7 is in the best of public interest and necessity, and would allow the Federal Communications Commission to proceed with rules and regulations.

Sincerely yours,

ROBERT N. FARQUHAR, *President.*

TOWN OF PATEROS,
Okanogan County, Wash.

Mr. HARRIS THOMASON,
Vice President, Washington State TV Association,
Ardenvoir, Wash.

DEAR MR. THOMASON: In reply to your request for information about TV in the town of Pateros, I have made a rather complete inquiry and find that the people are almost unanimously pleased with the service they are receiving from the reflector. The $10 yearly dues charge is considered most reasonable.

Pateros is a small town in a comparatively isolated location. Recreation facilities, especially through the long winter, are very limited. Television has filled a very real void here. It is easily the most popular form of entertainment and, for the oldsters in our two rest homes, it is practically the only form of entertainment.

Prior to the reflector, a group from Pateros investigated the possibility of television via cable but found it was not financially possible for a small isolated community such as ours. Likewise, conversion to UHF is financially beyond our means.

To sum it up, the residents of Pateros are very pleased with the reflector operation and fully support your association.

Sincerely yours,

M. D. ARMSTRONG, *Mayor.*

TOWN OF BREWSTER,
Brewster, Wash., May 27, 1960.

Mr. HARRIS THOMASON,
Vice President, Washington State TV Association,
Ardenvoir, Wash.

DEAR MR. THOMASON: The people in Brewster and the surrounding valley receive television through a VHF reflector. The use of this reflector is the only means by which TV can be channeled into our area. Reception is very good with this method and the cost to the people is within their means. Any other method now in use in other areas would preclude our people from the benefit of TV either from physical or geographical limitation or from the standpoint of cost.

Inasmuch as the TV association here works smoothly, dues collections are not a problem, and the citizens are receiving good service without interfering with anyone, I most strongly urge the approval and licensing of the VHF reflector.

Very truly yours,

A. L. LOWRY, *Mayor.*

TOWN OF MANSFIELD,
Mansfield, Wash., May 28, 1960.

Mr. HARRIS THOMASON,
Vice President, Washington State TV Association,
Ardenvoir, Wash.

DEAR SIR: We are a small community located physically on a plateau in the bottom of a saucerlike terrain.

The TV signals from principal stations around 120 air miles distant travel at a distance too high for us to reach. Many of us installed 100-foot towers but were able to get one station rather poorly.

Since the advent of reflectors we get decent reception on three stations.

We live in a sparsely settled territory, there are something over 800 miles of county road and about 28 miles of State road in our community which serves a town of approximately 400 and a surrounding territory which produces about 1¼ million bushels of grain annually.

We are 35 miles from the nearest movie house and 65 miles from theaters of any stature.

The present reflectors serve approximately 140 TV sets in our community.

We would like to feel we are a part of the good old United States of America and sure would hate to see anything done which would jeopardize our present TV setup.

Anything we know of at the moment which would produce equivalent to what we have now in television, would be highly impractical both from the physical and monetary standpoint.

Any action that can be initiated by Congressmen, Senators, and or the FCC which would assist communities of our type to continue to have respectable television and be a part of the daily activities of this country would certainly be appreciated by all the citizens of our community.

Yours for respectable television for the common folk in many small communities in our Northwest.

LLOYD FARMER, *Mayor.*

CITY OF LEAVENWORTH,
Leavenworth, Wash., May 25, 1960.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

HONORABLE AND DEAR SIR: May I add my voice to thousands of others in favor of Senate bill 1886 to amend the Communications Act of 1934.

My constituents and hundreds of people living in the environs of our city situated in the Cascades and faced, perforce, with a particular problem of television and transmission and reception, are certainly alert to favor legislation which will assure continued and unimpaired transmission and reception of television in this area.

We strongly urge you and your colleagues to do all in your power to hasten the process which will move Senate bill 1886 out of committee to successful enactment into law.

Respectfully yours,

ROBERT T. BRENDER, *Mayor.*

PEOPLE'S TV ASSOCIATION, INC.,
Soap Lake, Wash., May 31, 1960.

Hon. OREN HARRIS,
Chairman of House Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. HARRIS: The people of the Columbia Basin in Grant County are depending on the passage of Senate bill 1886 for their television receptions.

We are converting channels 2, 4, and 6 out of Spokane, Wash., and transmitting them on channels 8, 10, and 13. Due to the contour and elevation of our valley it is impractical if not impossible to get a picture direct from Spokane, which is the main source of television for this Columbia Basin. Our point of distribution is 700 feet higher than the valley we serve.

The People's TV is serving Soap Lake, Ephrata, Moses Lake, Stratford, Grant Orchards, Warden, Othello, and the Larson Air Force Base at Moses Lake, which includes most of the military personnel of this base. In addition to these seven towns and the airbase, a vast farming area is served.

The signals from this reflector are transmitted for a distance of 50 miles at 80 degrees, and will say that we are transmitting some of the best and trouble-free pictures that can be found.

Our organization is a nonprofit incorporation, controlled and operated by a board of nine members who are elected by the people. More than 3,000 families are receiving their televisson pictures through the reflector.

The equipment for the reflector, including antennas, was designed by some of the best engineers, and at no time have we ghosted any other service. We expect to meet and keep any and all regulations made by the FCC.

To remove this reflector service from the people of the Columbia Basin and the State of Washington would be depriving many people almost the only entertainment they have.

A standing invitation is extended to you by the board of directors and myself to come to this area and let us fly you over this country and see for yourself the problems involved. This area east of the Cascades extends to the Canadian border which is approximately 200 miles long and about 60 miles wide, an area of about 12,000 square miles.

We have elected Harris Thomason, of Wenatchee, Wash., to represent our State organization at the hearing on June 6. He will supply you with the facts concerning our television problems. We fully believe that Senate bill 1886 should be passed without delay so that we can continue this service to the people of central part of eastern Washington.

Very truly yours,

M. D. LANNIGAN, *President.*

MAY 31, 1960.

Subject: H.R. 11040; S. 1886.

Hon. OREN HARRIS,
Chairman, House Committee on Interstate and Foreign Commerce,
House Office Building.

DEAR SIR: Our town is served by a VHF reflector which gives us very good television at a reasonable cost ($10 per year). It is a nonprofit community-owned organization.

Because of terrain in town and surrounding country that reflector serves, it would be economically impossible to have a cable system or UHF translator.

It is about our only source of entertainment in the winter when snows are deep.

Therefore, I would appreciate your support on this bill. Thank you very much.

Sincerely,

CHAS. L. HOGLUND, *Mayor.*

ENTIAT VALLEY CHAMBER OF COMMERCE,
Entiat, Wash., May 30, 1960.

Subject: H.R. 11040; S. 1886.

Hon. OREN HARRIS,
Chairman, House Committee on Interstate and Foreign Commerce,
House Office Building.

DEAR SIR: It has been brought to my attention that our town (Entiat, Wash.) is faced with the possibility of losing one of our main sources of entertainment (television).

Our town is served with a VHF reflector which gives us a good TV picture at a minimum cost operated as a nonprofit community-owned organization. Because of the terrain and distance between users it would be economically impossible to install a cable system or UHF translator. Television is our main source of entertainment during the winter months and without our present setup many of us could not afford this entertainment.

Thank you.

Yours truly,

WILLIAM E. MCDONALD, *President.*

Mr. THOMASON. If I may have the time, I would like to read my statement.

My name is Harris M. Thomason. I reside in Ardenvoir, Wash., where I am sales manager for a lumber firm. I am representing the Washington State TV Reflector Association. We favor the passage of House bill 11040 because the existence of our members will become extremely difficult, if not impossible, if we are forced to try to convert to UHF.

Low-power VHF television boosters came into being because no other practical means of bringing television to people in the mountainous rural areas had been developed. It is now 6 years since this first booster was started here in the State of Washington, and still nothing has been devised that will take its place. Cable systems are practical in the metropolitan areas of larger cities and UHF in practical in those places with flat terrain to broadcast over, and with a large enough population to pay for the additional cost, for UHF costs more to install and more to maintain, but in the mountainous areas neither of these systems is the answer. Our opponents may cite reasons why

the VHF booster should not be licensed, but an examination of our opposition shows that with the exception of the Federal Communications Commission, our opposition comes mainly from people who have a financial interest in some other form of television service or are manufacturers of some other kind of television equipment. In other words, they are operators of CATV systems or are manufacturers of UHF equipment and they would like to see us denied a license in order to eliminate us as competitors or force us to buy the equipment they manufacture.

Now, I would like to make one thing clear. We booster people are not interested in any particular method of television transmission as such. We do not care what route the picture takes to get to our screen just as long as we get a picture and it is reasonable in quality and cost. We would be only too happy to be able to discontinue the operation of our boosters if it did not mean the end of our television, and I think it is worthy of note that we are not here asking for a grant of money, for the creation of a new Federal agency, or for someone to do this for us. We are willing to continue to do this job even though it means personal sacrifices, at times, for many of us.

A television picture is a picture regardless of whether it comes direct, through a cable, by UHF translator, or VHF booster. These are technical matters and to many people this has seemed to be a technical problem, but such is not the case. From a technical standpoint there is no problem. It is technically possible, for example, to build a 100,000-watt broadcasting station in Entiat, a town of 400 people, and as ridiculous as this is, if it were done, it would still not solve the problem for Arvenvoir only 10 miles away, for no method has been devised yet for driving a television signal through a mountain. No; it is not a technical matter. Rather, it is the matter of the financial feasibility, the cost per set to the viewer, wherein the problem lies. It is this matter of financial feasibility that rules out the CATV system and the UHF translator for these mountainous areas.

Perhaps I should at this point clarify just what I mean by a VHF booster. A VHF booster is one that receives a signal on one of the VHF channels, amplifies it, and rebroadcasts it again on the same channel. This is the simplest and least expensive form of transmission and gives the best coverage, because the lower channels will carry better and bend more into the shadow areas. If it is necessary to convert, or translate, to higher channels, it may make a system cost 10 times that of a simple booster system. At first glance, this may seem to be unreasonable, but the reason for this is that to the cost of the converters and higher powered amplifiers must be added the cost of the additional stations that will be needed to cover the same area. Here at Entiat, my own booster area, we have found by actual experiment that, for example, when we converted channel 6 to channel 11, even though we raised the output from one-quarter to 1 watt, many of our viewers would have no picture at all, and that we would have to add at least three additional stations in order to give the same coverage we have now.

I should like now again to consider our opposition. Those who oppose us for financial reasons I shall pass by, for their motives are obvious, but what of the FCC? At this point I would like to give a brief history of our relations with this agency.

In January 1954, Mr. James E. Livingston, a resident of the little town of Bridgeport, directed an inquiry to the Federal Communica-

tions Commission's field office in Seattle concerning the licensing of a television booster installation for use at Bridgeport. He was advised by the Commission that a cochannel amplifier or booster station such as he contemplated, could not be licensed under the Commission's existing rules and regulations.

Then a Mr. Powell, a resident of Bridgeport, early in 1954 installed a battery-powered booster station for receiving and directing amplified channel 4 television signals into Bridgeport, and later this was converted to a permanent installation with commercial electric power. Mr. Powell was notified by the Commission that this operation was unlawful. At this time the people of Bridgeport organized a nonprofit corporation, the C. J. Community Services, Inc., with Mr. James E. Livingston as president, and this corporation took over the operation of the booster. On November 3, 1954, the Commission wrote a letter to the corporation notifying them that their operation was illegal, but they continued the operation of the booster. On March 30, 1955, the Commission issued an order directing the corporation to show cause why a cease and desist order should not be issued against continued unlicensed operation of the booster.

A hearing was held on said order before a hearing examiner at Wenatchee, Wash., on May 16 and 17, 1955. The initial decision of the hearing examiner was that no cease and desist order should be issued. The examiner noted the legal questions involved but did not decide the case on them. He simply ruled that the Commission could exercise discretion in the issuance of its cease and desist orders and that to issue one in this case was not in the public interest. Oral arguments on this decision were heard by the Commission en banc on December 19, 1955, and on February 23, 1956, the Commission ordered the C. J. Community Services, Inc., effective March 6, 1956, to cease and desist from the operation of the booster. An appeal was taken from this decision, and on March 8 the U.S. Court of Appeals for the District of Columbia circuit granted a stay to be effective until final disposition of the appeal; then on May 3, 1957, reversed the order of the Commission and directed it to proceed with the rulemaking proceedings in its dockets Nos. 11311 and 11611 in which was to have been examined the feasibility of "booster" or translator stations, or possibly other devices, as a means of filling in the service area of television stations.

On June 27, 1957, the Commission took the following action:

1. Rejected proposals that provision be made to license currently unauthorized VHF boosters;

2. Rejected proposals that boosters be permitted to operate in conjunction with VHF television broadcast stations; and

3. Proposed rules to provide for the operation of boosters with UHF television broadcast stations.

On July 29, 1957, in response to a petition submitted by Gov. Steve McNichols of Colorado, the Commission agreed to reconsider its action of June 27, in which it rejected proposals for VHF boosters, and instituted a rule making procedure to formulate specific rules under which low-power TV repeater stations might be licensed. On December 30, 1958, the Commission adopted a report and order terminating its rulemaking proceedings in docket No. 12116, and for the third time denied requests that low-power devices be permitted in the VHF television band. This order directed all VHF boosters to take steps

within 90 days to convert to some type of authorized broadcast station. It also stated that no new VHF boosters could be started. On January 26, the Commission extended from 3 months to 6 months the time for VHF booster stations to comply with its public notice of December 30, and then later again extended this time for another 3 months to September 1, 1959.

I have given you this account of our struggle with the FCC for two reasons. First, because I think it well illustrates the desire of the people in the rural areas to enjoy the benefits of this modern form of of entertainment and instruction, and the dedication of those individuals who risked fine and imprisonment by keeping their boosters going after being served with cease and desist orders by the FCC, so that this desire might be satisfied. Second, I am not at all sure that when, and if, this bill is passed it will be the end of our struggle. I say this in spite of the fact that I understand the FCC is ready to issue rules for our licensing upon passage of this bill. What these final rules will be, I do not know; but the proposed rules contained several provisions that, if enforced, would deprive many people of their television. One of these provisions prohibits on-channel boosters. Another one limits the power of VHF translators to 1 watt.

Now what is the reason for the opposition of the FCC? As nearly as we can tell in talks with different officials, it is based on the fear that our operation would cause so much interference and would cause such a chaotic condition in the communications field that the FCC would be unable to properly assign channels and would be prevented from carrying out an orderly development of television broadcasting. Boosters have been operating in the State of Washington since 1954, and I would like to have someone point out to me this terrible interference problem we have created.

Our answer to this is that we ask to be licensed only on the basis of noninterference. In other words, we ourselves ask that we be allowed to operate only if we can do so without causing interference. All we ask is that interference be proven and that it be harmful interference. We should not be shut down on an unsupported statement of interference, and we should be allowed to resume operations when and if we eliminate any interference we may be causing. By this we mean that we do not believe we should be shut down simply because it is possible, by manipulation of an antenna, to demonstrate from an engineering standpoint that somewhere in our area our signal is interfering with some other signal, even though this interference is not observable on someone's TV screen or detectable by people using other forms of communication. Little will be accomplished if the rules for licensing boosters are so restrictive that compliance will force them off the air.

The sad fact remains that, as in many things in this life, it is the least privileged who will be hurt the most if this booster operation is denied, either by nonpassage of this bill or, if it passes, by too harsh a set of rules for operation. A small, isolated community obviously cannot finance a conversion that would place no burden on a community of, say, several thousand.

Let me say again that we do not want to operate illegally, and unregulated. We welcome licensing and regulation, and ask only that

the rules be fair and reasonable so that we may not be deprived of our television.

I should like to take just 1 minute to show you on page 19 a map of the area of the Entiat-Ardenvoir-Orondo booster, showing the two areas of Entiat and Orondo and the booster station. We transmit in two directions, one to the left up the Entiat River, and one to the right up the Columbia River.

If you will now turn to page 21, you see in the middle of that picture I have that circled with a red circle, the area of Ardenvoir, which lies down in behind those two ridges underneath that circle. I think this well illustrates where we would be if we had to convert, say, to UHF. The people up there simply would not get any picture at all. It would be just impossible.

Some of the other pictures show the various towns in the State of Washington, how the homes are scattered, and so forth, and why a cable system is not feasible for those areas.

There is one other thing I would like to bring out. The next to the last page, page 28, shows a map of the Soap Lake booster or reflector. You will notice that right in the middle of that map is the Larson Air Force Base. If you will look at the last picture then, page 29, you will see in that picture in the left-hand corner the Larson Air Force Base. The homes you see along the bank of the water are the Wherry housing development for the military personnel. This booster is putting that picture to these people right out over the Larson Air Force Base. I think that speaks pretty well for the confidence that the commadner of that base has that this booster will not cause any trouble or interference to the airplanes there, because if it did, if there were any chance at all, I personally believe that that operation would not be allowed for a minute. I do not believe any of of the people in this booster movement would operate these boosters if they thought they would cause one of these airplanes to crash or or that there was any danger to it.

That concludes my testimony. I wish to thank the committee for giving me the time to come back and present our problem to you.

The CHAIRMAN. Mr. Thomason, thank you for your testimony. Your entire folder will be received for the files, because obviously a great part of this, the pictures and things of that kind, could not be put in the record. We will receive it for the file.

Mr. THOMASON. Thank you.

The CHAIRMAN. Thank you very much, Mr. Thomason.

This will conclude the hearing for today. In the morning we will hear two or three witnesses to whom we will hear prior to the time we have to adjourn at 11 o'clock. It is the desire of the committee to conclude the hearings on this subject by 11 o'clock tomorrow when we have to adjourn for another meeting.

We thank the witnesses for their attendance here today and their testimony.

We have a letter from the Honorable Frank Church, U.S. Senate, which will be included in the record at this point.

Also a statement from Mr. George C. Hatch, vice president of KUTV, Salt Lake City, Utah. His statement will go in the record at this point.

(The statements referred to follow:)

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
June 6, 1960.

Hon. OREN HARRIS,
Chairman, Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: I understand your committee is today considering S. 1886, which passed the Senate February 9, 1959.

Since the Federal Communications Commission issued an order on January 5, 1959, declaring VHF TV boosters illegal, I have had many letters and calls from people in my State and more than 30 citizens came from every area in Idaho to testify at a Senate hearing on this subject held in Idaho Falls, Idaho, on October 28, 1959. Among the communities from which I have had appeals for assistance in keeping their TV boosters are Ahsahka, Bancroft, Carey Cavandish, Challis, Clayton, Clifton, Cobalt, Elk City, Ferdinand, Greencreek, Grangeville, Hailey, Harpster, Juliaetta, Leadore, Kamiah, Kooskia, Ketchum, Montpelier, Orofino, Palisades, Peck, Pierce, Riggins, Salmon, Stites, Sun Valley, Weippe, Wendell, and White Bird.

Recently, while I was in Idaho, I had an opportunity to see the TV booster at Leadore and I was amazed at the ingenuity and electronic know-how which has enabled the people in this remote community to enjoy television.

I have been told by responsible authorities that these TV booster and CATV pose entirely different questions and have been and will be considered in entirely separate bills. I have also been informed that, if the communities of Idaho are required to change to ultra high frequency (UHF) it would be financially impossible for many of them to comply. I believe that the people of my State are entitled to television at a price they can afford.

I hope it will be possible for your committee to give this bill, S. 1886, favorable consideration.

Sincerely,

FRANK CHURCH, *U.S. Senator.*

STATEMENT OF GEORGE C. HATCH, VICE PRESIDENT, KUTV, SALT LAKE CITY, UTAH, AND PRESIDENT, KLIX–TV, TWIN FALLS, IDAHO

Mr. Chairman, my name is George C. Hatch. I am vice president of KUTV, Salt Lake City, Utah; president of KLIX–TV, Twin Falls, Idaho; and president of Copper Broadcasting Co., holding a construction permit for KOPR–TV, Butte, Mont. I am also director of the National Association of Broadcasters for district 14, embracing the States of Utah, Idaho, Montana, Wyoming, Colorado and New Mexico, and parts of South Dakota.

The six-State mountain area has the greatest concentration in the country of repeater devices—translators converting metropolitan VHF station signals to UHF channels, boosters rebroadcasting on VHF channels, and community antenna systems retransmitting signals on wired systems.

Our mountainous area has many small communities located in valleys that cannot receive direct line of sight transmission from television stations located in the larger city centers. The only way these countless smaller communities have received any television service has been through the use of repeater devices.

Television stations are fully aware of the vital role the various types of repeaters have played in bringing the only television service available in many small communities and strongly support the Commission's request to Congress for legislative authority which will facilitate the Commission's licensing and regulation of boosters.

Lyle O. Keys, technical director of television station KUTV, has made extensive field trips covering repeater devices rebroadcasting our Salt Lake City station He reports that there are approximately 41 VHF booster installations, repeating the signal of KUTV in Utah, Idaho, Nevada, and Wyoming, and providing the only television service available to approximately 39,600 persons.

Unless the FCC is given the authority it has requested from Congress to license these boosters, as provided in S. 1886 and H.R. 11040, the FCC may be forced to order them to cease operation, and 39,600 persons in the coverage area of KUTV alone suddenly will be deprived of any television reception.

It has been suggested that the Commission should require the conversion of these VHF boosters to UHF translators. Mr. Key's field studies indicate that these small rural nonprofit cooperative installations have been put in at very low cost and that the persons served could not afford the considerable expense of conversion to a new UHF translator installation. Several of the booster operators report that they have experimented with UHF transmission and found that it is not workable in the mountainous area served. A further important drawback in attempting to convert existing boosters to UHF frequencies is that it will require all of the set owners to purchase new equipment for their sets in order to receive the television signals.

I believe that the FCC should license and regulate booster installations to insure that interference is not caused to direct reception from television stations and so that adequate technical standards are set for installation and operation.

VHF boosters exist by the hundreds. It is urgent that they be properly licensed and regulated so that they can continue to fulfill their vital function of providing nationwide free television service to a maximum number of persons. I believe that VHF boosters, like UHF translators and CATV's, should be licensed to fill in television service where standard TV broadcasting stations cannot provide satisfactory direct reception. Under no circumstances should repeater devices be licensed to duplicate the programs of standard TV stations where they provide adequate direct reception.

If, in any instance, a VHF booster would be authorized to repeat the programs of an outside television station in the primary coverage area of a local standard television station, the authority should be only on the condition that the booster would not duplicate the programs of a local station.

It is urgent that the present chaotic condition in television repeater services be brought under the orderly licensing and regulatory authority of the Federal Communications Commission with the qualification that boosters would be licensed by the FCC to supplement and not duplicate standard television service. With this qualification, I support the authority requested by the FCC as embodied in S. 1886 and H.R. 11040.

The CHAIRMAN. The committee is adjourned until 10 o'clock tomorrow.

(Whereupon, at 4:20 p.m., the subcommittee adjourned to reconvene at 10 a.m., Tuesday, June 7, 1960.)

TELEVISION BOOSTER STATIONS

TUESDAY, JUNE 7, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS AND
POWER OF THE COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10 a.m., in room 1334, New House Office Building, Hon. Oren Harris (chairman) presiding.

The CHAIRMAN. The committee will come to order. In resuming the hearings this morning on S. 1886, we are very glad to welcome our colleague, the Honorable Byron L. Johnson, of Colorado. Mr. Johnson, I know of your personal interest in this problem, which you have from time to time made very clear to me. We are very happy to give you this opportunity to express your interest for the record and those here.

STATEMENT OF HON. BYRON L. JOHNSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. JOHNSON. Mr. Chairman, I appreciate your kind introduction. I will not read my full statement. I will ask that it be filed in the record as if read.

I should say it was my good fortune to serve as a State legislator under the former chairman of the Senate committee, Senator Edwin C. Johnson, when he was Governor of Colorado, and later to serve as administrative assistant to the Governor of Colorado, Stephen McNichols. In both those relationships I had occasion to hear about and talk about the problem of TV booster stations.

I should tell you that although I represent 30,000 square miles, one-third of northeastern Colorado, there is not a single licensed TV station in my district. All the stations are in Representative Byron Rogers' district, Denver, although a few transmitters are located in mine. In many of the communities, even in my own district as well as in the neighboring districts to the west and to the south, the only opportunity for these American citizens to enjoy the benefits of network TV is to have the kind of community systems that now exist.

I should add further that this has been so well thought of in Colorado that the last session of the general assembly approved a State law making it a legal act for a local unit of government to invest public funds in the construction and operation of these little community systems. These are often towns of one or two thousand. If we do not have some way by which they can translate or boost or rebroadcast as existing signal, these people will be denied television.

I should add that because of what has been done in our own State and others, many millions of dollars have been invested by the public in the systems that now exist, and in receiving sets. It becomes most urgent, therefore, that this committee give favorable consideration to S. 1886 if these investments on the part of the citizenry are to continue to have meaning. Otherwise, we run the risk that the FCC will in fact lower the boom on them and force a far more costly system on the entire public, which at least in our area of the country is not necessary.

There may be problems that should be prevented and will be prevented by S. 1886. These have not been a matter of concern in my area. I thank the committee for hearing me.

The CHAIRMAN. I would like to say to our colleague we appreciate your appearance here and your testimony. Your statement will be included in the record in full. I realize you have another committee to go to. We do have to make ourselves available at various places often around here. We appreciate having your statement.

Mr. JOHNSON. Thank you very much, Mr. Chairman.

(Mr. Johnson's prepared statement follows:)

STATEMENT OF U.S. REPRESENTATIVE BYRON L. JOHNSON (COLORADO) IN SUPPORT OF S. 1886 TO LEGALIZE AND REGULATE BOOSTER OPERATIONS

Mr. Chairman, I am Representative Byron L. Johnson of the Second District of Colorado, which embraces all of northeastern Colorado except Denver, a district embracing more than 30,000 square miles. In my district are many small communities of 1,000 to 2,000 population which cannot afford the luxury of their own television station. Indeed, many of them can't afford a radio station. In that entire district there isn't a single TV station. The only TV we receive is broadcast from Denver and these signals are incapable of reaching the outer reaches of the district or the mountain communities without some supplementary system to boost the signal. Many of these communities are in such remote mountain areas that the only TV signal they can receive would be one which has been boosted, repeated, or translated by simple equipment located on a nearby hilltop or mountain top, that would reach into the valley.

Very simple systems have been developed as a community service, frequently subscribed by voluntary gift of prospective users of the local signal. Hundreds of thousands of dollars are invested in receiving sets and antenna, which would become useless if the FCC's ruling of 2 years ago were to be enforced. The FCC finally recognized the widespread public interest in such systems and the necessity for such systems, if people in remote areas and sparsely populated communities are to be served by the same services which other American citizens can get directly from the broadcasting stations.

As most of you know, TV and network TV have profoundly modified radio and network radio so that if an American citizen is to have the same benefit of our Communications Act, he must now possess a TV receiver and must have some system which guarantees that he will receive a reasonably clear signal. S. 1886 approved by the Senate provides a legal base by which this can be done. The FCC anticipating approval by Congress, has permitted the existing stations to carry forward. Our own State legislature has taken action to authorize the expenditure of public funds for the development and operation of such systems.

We firmly believe that it is a matter of simple justice for the House to give assent to the action already approved by the Senate so that every American citizen—even those in the remote vollages and hamlets—may have an equal opportunity to enjoy the educational, cultural, scientific and entertainment resources which modern telecasting provides, and that this be done without requiring the destruction of existing stations which had been erected before a permit could have been legally secured.

If this bill fails to pass and the FCC proceeds with its order of suspension toward boosters, for lack of statutory authorization to recognize and regulate them, a staggering number of communities and citizens in my district will be blacked out fo far as receiving television broadcasts is concerned. I earnestly urge that the committee give this measure prompt and favorable attention.

The CHAIRMAN. Our colleague, the Honorable David S. King, is the next witness. I think I should refer to the fact that Mr. King of Utah also has a bill having to do with this general subject, but it includes, of course, the community antenna problem, which is not a matter of consideration during this hearing. That is one I am reasonably sure we will be called upon to wrestle with in another Congress. Mr. King, we will be glad to hear you at this time.

STATEMENT OF HON. DAVID S. KING, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. KING. Mr. Chairman and members of the committee, I thank you for the opportunity to express my support of S. 1886 and H.R. 11040, identical bills, which would give the Federal Communications Commission the authority to license and regulate VHF television booster stations. This committee and the chairman of the full committee, the Honorable Oren Harris, are to be commended for scheduling these hearings to study a problem which directly affects a service which hundreds of thousands of American families enjoy. In the West, hundreds of thousands of rural residents depend upon television booster stations to bring television signals to their homes. As a Utahan, I am particularly conscious of the importance of the service which these boosters provide. Utah is situated in a 6-State intermountain area which has the Nation's heaviest concentration of the VHF boosters. The importance of the booster stations in the intermountain region is recognized not only by the communities and families which they serve, but also by the television broadcasting stations whose signals are carried by the boosters.

Although most of the telecasts in Utah originate in one city, Salt Lake City, most of the State now enjoys television. With the aid of booster systems, towns and farms as far as 250 miles from Salt Lake City are getting good reception. If the booster systems, particularly the VHF systems, were suddenly forced to cease operation, as much as two-thirds of the State, in point of area, would lose its television service.

The VHF boosters are easily the most popular television repeater systems in use today. Although antenna cable systems and UHF repeaters also are widely used, the VHF boosters carry television signals to many communities and homes which could not, as a practical matter, obtain television through the other systems. There are important reasons for this:

1. In mountain terrain, the UHF repeaters are far less efficient than are the VHF boosters. The UHF boosters relay signals only in straight lines, so their signals are easily disrupted by irregular terrain.

2. Without the VHF boosters, the cost of television service for many small communities and for isolated families in mountain terrain would be prohibitive. The cable antenna systems provide excellent service for the larger communities which can afford them, but the cost of extending these systems to farms and homes on the outskirts of communities served by these systems is prohibitive.

Proposals may be offered to amend these bills to provide: (1) That the legislation limit the existence of the VHF booster stations to the Western States. (2) That their existence be authorized for only 5 years and that they be required, as that period expires, to convert

to UHF systems or to cease operation. We sincerely hope that this committee will resist such proposals. We feel that neither seeks honestly to improve the bill, and that both are aimed ultimately at defeating the existence of the VHF boosters.

Because the VHF boosters provide television service for hundreds of thousands of westerners, and because these boosters are essential to the maintenance of that service, we urge this committee to act favorably upon these bills. If the House fails to approve legislation to authorize the operation of these boosters, and to give the FCC the authority to license and regulate them, this inaction possibly will be interpreted by the FCC as congressional consent to the Commission's decision of last year holding that the VHF boosters should discontinue operation. The implementation of that decision would, we feel, do a serious injustice to the families who enjoy the service of these boosters.

If the boosters are causing interference with other communications in certain isolated cases, we feel this interference could be easily eliminated once the boosters were placed under FCC jurisdiction. But it would be a grave injustice to penalize the families which enjoy the booster service by stripping them of that service simply because the boosters caused interference in a very small number of cases. This is a problem which the FCC can solve if it has the authority to regulate the boosters, prescribe the equipment which will be acceptable in booster installations, and to adjudicate specific cases of interference.

The CHAIRMAN. Thank you very much, Mr. King.

Mr. KING. Thank you, Mr. Chairman.

The CHAIRMAN. Yesterday we called on Mr. Warner Spencer of Lemhi, Idaho. There is a request that he may include his statement in the record. It may be included at this point.

STATEMENT OF WARNER SPENCER, REPRESENTING IDAHO T.V. REPEATER ASSOCIATION

Mr. SPENCER. Mr. Chairman, I would like to have it entered on the record that Idaho is represented at this hearing, if that is possible. There would be no object in my testifying. It would be a duplication of what has gone before, but I would like to have it on the record that Idaho was represented. I am Warner Spencer of Lemhi, Idaho, and I represent the Idaho TV Boosters Association.

The CHAIRMAN. Very well. Your statement may be in the record, Mr. Spencer, and we appreciate your coming to Washington in connection with this problem.

(Mr. Spencer's prepared statement follows:)

STATEMENT OF WARNER SPENCER, LEMHI, IDAHO, REPRESENTING THE IDAHO T.V. REPEATER ASSOCIATION

The State of Idaho has approximately 35,000 people whose only television reception is made possible by 34 VHF boosters. At the present time these boosters are operating extra legally, insofar as the FCC has not been legally enjoined to license them.

Varied reasons have been presented which purport to show why licenses should not be granted these boosters. First among these perhaps is the contention that they interfere with other media of communication, which also use the airwaves, however, to the best of our knowledge, no actual complaint has been shown regarding any VHF boosters in Idaho presently operating. Federal licensing will permit close supervision of all booster operations, to prevent any future possibility of interference.

Opponents of VHF boosters, who suggest instead the installation of UHF boosters fail to consider the $40 a set installation cost, plus a cost of $10 for the antenna. It has been proven in the Idaho communities of Salmon, Lewiston, and Cottonwood, that only the $40 adapter will provide adequate reception. The cost of a UHF booster installed is approximately $5,000.

This initial cost for UHF reception should be compared with the fact that VHF requires no adapter or other extra costs to the set owners, and has an installed cost of less than $1,200 per channel. The monthly maintenance cost of UHF in one Idaho community has been $97, compared to a monthly maintenance cost of $15 for a VHF booster in a nearby community.

In addition, the line of sight signal of UHF makes it unsatisfactory for most areas in mountainous Idaho.

The majority of communities in Idaho have no one qualified to service UHF equipment. The expense of securing this service at $65 a day is, obviously, prohibitive.

Cable and community antenna systems are practical only in urban areas. The cost of providing this service to Idaho's farflung ranches would be astronomical.

Although it might appear to a casual observer that VHF boosters will tend to discourage small communities from establishing their own television stations, this would not be the case. Due to the extremely mountainous terrain, few towns in Idaho would be large enough to maintain a station.

The only actual encouragement for a small station to be established in these communities is that VHF boosters would provide adequate coverage for profitable operation.

The suggestion has been made that if boosters are permitted they will cause duplication of programs received direct from local stations. In Idaho, only the Lewiston area has encountered such a problem, and even there it has not been extensive.

We do not oppose UHF systems for those who wish and can afford them, and where they are technically feasible. We feel, however, that in the present era of low farm prices coupled with high cost, it would be unfair to deprive 35,000 people of Idaho of low cost television reception without proven reason.

Almost without exception, the VHF boosters in Idaho have been installed with volunteer labor and many small donations from enthusiastic and enterprising communities. To force these citizens to relinquish the fruit of their labors would appear to be a blow struck against their community spirit and initiative.

At the hearing of the Communications Subcommittee of the Senate Committee on Interstate and Foreign Commerce, held at Idaho Falls, Idaho, on October 28, 1959, many citizens from all over the State came at their own expense to testify in favor of licensing VHF boosters. It is our hope that you will see fit to permit television reception to continue for over 35,000 citizens of Idaho dependent on VHF boosters, as was testified to by these people in this hearing. They cannot be here today to tell their story. Instead, they depend on me to speak for them as their representative.

It is then their plea, their boosters be given the recognition of the service they perform, and be allowed to continue by passage of S. 1886 now being considered.

The CHAIRMAN. Mr. Milton J. Shapp, president of the Jerrold Electronics Corp., Philadelphia, Pa. Mr. Shapp, we are glad to have you this morning. You may proceed.

STATEMENT OF MILTON J. SHAPP, PRESIDENT, JERROLD ELECTRONICS CORP., PHILADELPHIA, PA.

Mr. SHAPP. I thank you, Mr. Chairman. I appreciate this opportunity to present my views on this subject. I have submitted two written statements, one dated June 7, and the other is a pamphlet entitled "The Dilemma of the TV Boosters and a Solution."

For two reasons, Mr. Harris, I will not stick to the printed text of the statement I have submitted: One, to save the time of your committee and, two, last night I broke my glasses. So it would make it a little difficult for me to read it anyway.

(Mr. Shapp's prepared statement follows:)

STATEMENT OF MILTON J. SHAPP

Mr. Chairman and members of the committee, my name is Milton J. Shapp. I am president of the Jerrold Electronics Corp. of Philadelphia, a company which, since its founding 12 years ago, has concentrated upon developing techniques which have successfully extended television reception to the so-called fringe areas of the United States.

In 1948, our company first produced television antenna preamplifiers which, in those early days of television, effectively extended the range of the then existing television stations. In 1949, our company developed, manufactured, and installed the first master antenna systems for apartment houses and hotels. This technique of connecting a large number of receivers to one antenna was extended in 1950 with the installation by our company of the first commercial community antenna system in Lansford, Pa. Since then our company has equipped hundreds of communities throughout the United States with community antenna systems.

Several years ago, we designed, manufactured, and installed a number of VHF satellites and translators for Central and South America. Thus, our experience covers the entire gamut of fringe area television services.

Before proceeding with this testimony, permit me to define several terms as they will be used throughout this presentation:

1. A fringe reception area is one in which residents do not have available full network television reception by means of ordinary roof top television antennas. Economic or geographic factors can be responsible for thus depriving a community of a full range of television entertainment. A community may be too sparsely populated to assure economic support through advertising revenue to locally established television stations and, at the same time, the community may be located at too great a distance from television stations or intervening mountai ranges may block off direct reception.

2. Community antenna systems overcome the high cost of individual antenna tower installations required in these fringe area communities, by providing a single antenna tower, from which television signals are distributed to the entire community over an electronic cable system. Today more than 800 community antenna systems provide multichannel television reception to over 2 million viewers who formerly were completely or partially deprived of television entertainment.

3. A second authorized service for extending television to fringe area communities is the UHF translator service. UHF translators are low-powered rebroadcast units that receive the signal of a conventional broadcasting station, convert or "translate" it to a UHF frequency, and rebroadcast it into a fringe area community. More than 200 translators, serving some 120 communities or groups of nearby communities, now have been authorized in all of the States of the West and also Texas, Oklahoma, Iowa, Minnesota, Pennsylvania, Maryland, New York, and the Connecticut Valley area of New England.

4. The UHF translator service was established by the Federal Communications Commission in 1955, in order to enable the Commission to cope with what it has considered a very serious threat to the entire allocations program, stemming from the growth of a third—and unauthorized—means of providing television for fringe areas; namely the VHF booster. This is a "do-it-yourself" device, which picks up a regular VHF signal and sprays that signal into a community, without any channel allocation or Commission authorization.

It is the dilemma posed by the VHF booster, within the framework of national fringe-area television reception, to which I should now like to address myself.

In previous testimony before the Senate Interstate and Foreign Commerce Committee, I had the privilege of joining the community antenna system industry in strongly urging the approval of a UHF translator service "as a means of extending television reception into fringe area communities which could not be served economically by local television stations, satellite stations, or community antenna systems" when that service was first proposed by the Federal Communications Commission. Though fully cognizant that UHF translators would offer direct economic competition against community antenna systems in certain areas—and they, in fact, are going so today in more than 30 locales—the company nevertheless considered authorization of such a service in the best public interest.

In two subsequent appearances as a witness before the Senate Interstate and Foreign Commerce Committee, the company's president testified that in authorizing a UHF translator service, the Federal Communications Commission had effectively complemented the services then being rendered by small town television stations and community antenna systems.

While strongly backing the development of a UHF translator service Jerrold, in comments filed with the Commission in docket No. 12116, went on record as being opposed to the authorization of low-power VHF booster stations. It was the company's conviction that whereas the utilization of community antenna systems and UHF translators, in conjunction with local television stations, could bring about universal television coverage of the United States, the authorization of low-powered VHF repeaters would have disastrous effects for the TV broadcast industry and for the public because:

1. It would lead to chaotic conditions of communications interference in many areas of the United States.

2. It would seriously degrade the allocations program, upon which the television industry is based.

3. It would pre empt local VHF channel availability and thus preclude the future possibility of adding local VHF broadcast service in secondary markets. This is particularly relevant as the Commission considers the allocation of additional dropin facilities.

4. It could, similarly, destroy the operation of UHF broadcasting stations by indiscriminately extending VHF station coverage into the already economically precarious UHF markets.

In a well-documented engineering report, submitted to the Federal Communications Commission in docket 12116, it was shown that VHF boosters are technically self-defeating because their signals interfere with those received by individual antennas, by community antennas, and at the antenna site of licensed UHF translators. Furthermore, VHF repeaters also interfere with each other. Thus, if ever legalized, under any set of conditions that would permit wide-scale usage, VHF boosters would become a self-defeating service.

This evaluation concurred with that made by the Federal Communications Commission, which on three successive occasions, denied authorization of a VHF booster service. Denial was supported by comprehensive engineering undertaken by the staff of the Federal Communications Commission, which on each occasion showed that it is technically extremely difficult to impose proper and stringent standards upon a VHF service.

That is the technical aspect of th VHF booster dilemma. However, there also exists today a social problem, which no longer permits a resolution of this problem along the course dictated by technical necessity. For the fact is that approximately, 1,500 low-powered VHF television boosters now are in operation in the Northwestern States. The growth of this service in the Northwest—unauthorized as it may have been—reflects a particular geographic and economic need in that part of the United States.

In contrast, the very lack of interest shown in this service in the eastern and midwestern areas of the United States reflects the satisfactory fringe area coverage in these more densely populated areas, by means of the established and authorized fringe area services. The more concentrated communications coverage of these sectors of the United States would leave these areas susceptible to chaotic interference patterns by VHF boosters. Thus, the very threat of such interferences has discouraged the construction of VHF boosters.

In view of this regional variation in the need for fringe area reception services, I respectfully propose that a compromise resolution of this problem may be called for—one which can satisfy the fringe area reception needs of the Northwest, without jeopardizing the interests of viewers and broadcasters in other sections of the United States. A solution would call for:

1. Passage of enabling legislation by the House of Representatives (S. 1886), granting grandfather rights to the existing boosters.

2. The development of a controlled VHF booster service on a regional basis. The FCC should grant authorization to existing boosters for continued operation, provided they cause no interference to existing fringe area services—namely, television stations, community antenna systems, and UHF translators.

3. Rejection of a nationwide VHF booster service.

In view of the prevailing political, technical, and legal considerations, it is respectfully submitted that the foregoing solution is a reasonable method for handling the VHF booster problem—one that will solve existing problems without creating new ones.

I believe that if such a compromise can be achieved and such regulations can be strictly enforced, it will result in a massive extension of the existing fringe area services to the remaining fringe areas of the United States.

Mr. SHAPP. I will summarize this briefly, and if there are any questions, I would be very glad to attempt to answer them for you.

My name is Milton Shapp, serving as president of Jerrold Electronics Corp. in Philadelphia. Our company has had broad experience in this whole problem of bringing television to the fringe areas of the United States. We have been in this business for the past 11 years and probably have had more direct field engineering experience in this particular phase of the television industry than any other company.

We have supplied equipment and we operate some community antenna systems. We have manufactured equipment that is used for the TV boosters. We have installed quite a few of the UHF transmitters that are serving throughout the country. In addition to this, we have designed and manufactured some booster equipment and installed this equipment in Central and South America during the past few years. So that our experience runs the gamut of the various methods that have been used to bring television into the fringe areas.

There is one point I would like to comment on in this regard. I know, in reading some of yesterday's testimony, and also from the testimony that was presented in the Senate when this bill was discussed, that there are many comments relative to the terms "free television" and "pay TV."

I would like to point out that in this connection when dealing with fringe areas the terms "pay TV" and "free TV" do not apply at all, as we normally consider pay TV a program service for which the people pay for the programs.

It is an unfortunate truth that all television reception in fringe areas is a costly thing. You will find many people will spend from 50 to two or three or four hundred dollars to put up a great big tower in order to receive the programs of a distant station. You will find some of these people group together, put up one tower for 5 or 6 or 10 people in order to share the costs. In a community antenna system this principle is extended a little further so that an entire community can share the cost and operation of one antenna.

In many of these communities that are served by community antenna systems you will find people putting up their own antennas to receive programs, and invariably the cost of these individual antennas is equal to or, in many cases, in excess of the cost of subscribing to a community antenna system.

The three types of rebroadcast service that have been used in fringe areas deal with satellites, VHF boosters, and UHF translators. There are a few satellites that have been installed and operate. These have been put into operation as satellite transmitters, high-power transmitters, to extend the areas covered by a broadcast station. For example, there is Lufkin, Tex., served by a satellite from Houston.

The CHAIRMAN. What do you call a satellite?

Mr. SHAPP. This is a fully operated high-powered station that is put on the air just like a broadcast station, with the exception that its programs are originated by a mother station and the satellite does little, if any, of its own program origination.

The CHAIRMAN. It is not referred to as a booster at all, then?

Mr. SHAPP. No, sir; it is an entirely different type animal.

The CHAIRMAN. As an example, Hot Springs, Ark., I think, has a channel that has been designated to cover that small community. Apparently they are not capable, economically speaking, of carrying on a full-time station. The station at Fort Smith, Ark., is owned by the same people, which is operating, and I understand they say they will operate and are going to operate Hot Springs, but the program is coming through their Fort Smith station. Therefore, that would make the Hot Springs station a satellite. Is that what you would call it?

Mr. SHAPP. That is correct. The two types of rebroadcast service that are generally in use are the VHF booster and the UHF translators. The translator is authorized by the FCC and in the case of a translator they pick up a signal at a point where the broadcast station signals are received, convert them to one of the top 14 frequencies in the UHF band and then rebroadcast into the smaller area.

In the case of the VHF, they pick up the signals in the same way but, then, instead of converting to the UHF band, it is sprayed out again as a VHF signal. The receiver equipment, I might add, for a community system, is identical.

The CHAIRMAN. Identical to what?

Mr. SHAPP. UHF translator or VHF booster.

At the receiving point, in order to get the signal of the broadcast station, the equipment is identical.

The CHAIRMAN. What is the difference in the receiving set that takes it directly from the station and one that takes it from the translator?

Mr. SHAPP. That is not my point. Perhaps I have confused the issue.

When you are on top of a mountain and picking up the signal from the broadcast station, let us say you are picking up the signal from a Spokane station at the top of a mountain, and you are going to use a UHF translator to spray the signal down into the valley or a VHF booster to spray the signal into the valley or community antenna system, the receiving equipment on the top of the mountain is identical.

The CHAIRMAN. I see what you mean.

Mr. SHAPP. It is just the method of carrying the signal from a receiving location into the town that varies.

The CHAIRMAN. Go ahead. I want to ask you some questions later on.

Mr. SHAPP. The point I wanted to get at here is that in any type of service in the fringe areas, in order to get the signal from the broadcast station to the ultimate viewer, there is a cost involved. It is a misnomer to say that one way of bringing reception to the fringe area is free TV and another way is pay TV. There are costs involved no matter how it is done.

I would like now to carry on with page 3 of my written statement.

On previous occasions I have appeared as a witness before the Senate Interstate and Foreign Commerce Committee discussing the booster matter and also submissions to the FCC in regard to VHF boosters. Our company has taken the position that VHF booster service for a service to cover the entire United States should not be authorized because it would lead to chaos in the communications business in the television industry. There are four reasons for this.

First, it would lead to chaotic conditions of communications interference in many areas of the United States.

Two, it would seriously degrade the allocations program, upon which the television industry is based.

Three, it would preempt local VHF channel availability and thus preclude the future possibility of adding local VHF broadcast service in secondary markets.

I might also add that this would preclude many of the educational stations from starting operations.

Four, it would destroy the operation of many of the UHF broadcasting stations by indiscriminately extending VHF station coverage into the already economically precarious UHF markets.

Going back over these four points, one of the differences between a VHF booster and a UHF translator is in the interference pattern that it develops. There are only 12 VHF channels so that the FCC has worked out an allocation program to separate these stations on the same channel throughout the country to prevent interference between, say, two channels on channel 4 and two channels on channel 6, and so on.

As you put in the small VHF channels into areas of the country where there are many VHF stations, you build up more signals in this area and, therefore, start increasing the interference that develops between the stations. If a VHF booster service were to be authorized to cover the entire United States, you would find that in the densely populated areas of the country and in the flat areas of the country, you would have severe cases of interference so that the adoption of an overall VHF booster program would prove to be self-defeating.

The second point——

Mr. YOUNGER. Would you submit to a question there?

Mr. SHAPP. Surely.

Mr. YOUNGER. Why would a booster station be necessary in flat country or in a city where they can get the original signal?

Mr. SHAPP. Let us take some of the places in Iowa or in Minnesota or in this area of the country presently being served by UHF translators. Let us take towns like Spencer, Iowa, which is, I think, about 110 miles from the broadcast station. In order to get the signal, they build a high tower of some three or four hundred feet at the receiving point and then they convert to UHF to spray into the town. If they were to spray into that town with a VHF booster, they would create then interference in the air signals of the band in order to get this coverage. With the UHF signals they are not causing any interference with any other service. If they used VHF they could conceivably cause interference with other VHF services. One engineering fact that should be brought out at this point is this: It takes a signal of about one ten-thousandth in strength to cause interference; that is, one ten-thousandth of the strength of a signal usable to which a signal can cause interference with another signal. Even though you are down in power, this does not prevent interference from causing problems.

Does that answer your question?

Mr. YOUNGER. Yes.

Mr. SHAPP. As for the second point I mentioned, the allocation program, this ties in with the fourth point of UHF stations.

There would be a big attempt made to rebroadcast the signals of some of the larger cities into the smaller markets. A VHF booster

could be put on the air at relatively low cost and serve as an extension of the major market station. For example, you can look at the area around Chicago where you have UHF translators and UHF stations on the air in Peoria or South Bend, and so on. There would be a very inexpensive way for Chicago stations to cover the South Bend area by putting VHF boosters on the air in South Bend serving as rebroadcasting of their signals. This would hurt the allocations program and also greatly affect the economic life of UHF stations in these areas.

The third point of preempting local VHF channel availability simply refers to the fact that in this area, where a local station is authorized, but not yet on the air, the starting of a VHF booster in those areas would preclude the possibility of a VHF station or a UHF station coming on the air at some later date. Therefore, it has been our position that to have an overall VHF booster service in the United States would be self-defeating because of the interference problem and create many problems of territory invasion of broadcasters.

Looking at the problem as a whole, and recognizing the impact that the boosters have had in the Northwest about 6 weeks or 2 months ago, I circulated this little pamphlet entitled "The Dilemma of the TV Boosters and a Solution."

In this, I point out the fact that there are many dilemmas posed by this problem but that there is a solution that, although it does not solve all of the problems, it goes a long way toward handling the problems and taking into account the existing circumstances. The dilemma is this: In the areas of the country now being served by these VHF boosters, the booster people themselves in their filing at the FCC in docket 12116 opposed the rules that were proposed by the FCC for technical equipment proposals and limitations of power on the ground that this would mean an expensive change in all of their existing equipment. It seems that none of the equipment that has been used to date for these lower powered VHF boosters in the Northwest would meet the proposed specifications of the FCC so that the booster people are opposed to going to the stringent technical specifications.

On the other hand, the broadcasters and the consulting engineers who filed comments on this were almost unanimous that the proposed rules of the FCC were too loose and that if they wanted to have a nationwide service of a VHF booster, for VHF boosters, these rules would have to be more stringent and have better filters and filter controls on stability and lower power. This is one of the dilemmas of establishing a booster thing.

The second point is that the people in the Northwest are presently satisfied with their service and would not like to go to the high cost of converting over to the type of approval recommended by the FCC. Taking this into consideration we propose a solution to the problem based upon four points which are listed on the back page of this pamphlet.

First, that S. 1886 should be approved by this committee and should be passed by the House of Representatives in order to give grandfather rights to the existing boosters. They should be able to continue to operate with their present equipment.

Secondly, the FCC, then using the authority granted by S. 1886, should grant authorization to all existing boosters to continue this operation with their present existing equipment with the single provi-

sion that they cause no interference to reception. By this I mean reception to individual homes or to the receiving points of translators or CATV or other boloster sites.

Three, the FCC should reject with finality the concept of a nationwide booster service and docket No. 12116 should be closed.

Four, no additional VHF boosters should be permitted to commence operation in any area of the country. I notice in the testimony of the FCC yesterday there are about 270 operating UHF translators that have proven the feasibility of this UHF translator service. There has been some comment regarding costs of UHF translators as against VHF boosters and in this fourth point I would like to introduce some cost data that I think is quite relevant.

From the studies that have been made—and these are studies made by our company and also by a group of engineers headed by Mr. Earl Collum—the cost of installing and operating UHF translators when compared to the cost of installing and operating VHF boosters that would meet FCC rules are about equivalent. There is a lower cost today to the installation of the present booster equipment that is being used but the cost of equipment to meet the specifications laid down under docket 12116 by the FCC would be equivalent to the cost of the present UHF translators. The UHF translator would have one big advantage in that, whereas the FCC proposes a 1-watt limitation of power in VHF in order to try to limit the interference that would be caused, because of the characteristics of UHF frequencies and the fact that you have this UHF band at the top, the last 14 frequencies are reserved just for translators and they are permitted to go up to as high as 100 watts of power and even at 100 watts, it would not cause interference.

Therefore, it is possible, with UHF, to get considerably more power from the apparatus than you would under VHF service.

The cost at the individual home then becomes a critical factor. This is something that has not been generally stressed by booster proponents because of the low power under which these VHF boosters operate. It is generally necessary to spend from $40 to $75 for a VHF antenna. They put up these great big antennas because they have to have an antenna that is sensitive enough to operate in these low-signal areas.

Because of the added power that you can get at UHF without creating interference, it is possible to buy a UHF antenna of higher gain at a much lower cost. There is another thing that is necessary with UHF and that is a converter to convert these UHF frequencies so they can be used with a VHF set.

We have a Gerrold package UHF converter and a UHF antenna that will make available in translator areas at a cost to the translator a service of under $25 so that we are prepared in these areas to supply a converter and an antenna at a cost that is normally under the cost of VHF antennas themselves.

I submit that with the cost of the transmitter site being almost the same to meet the specifications and with this type of a plan that is is possible to go to point 4 of my suggested solution here and go to UHF translators in the areas of the country now not being served by either boosters or translators, and do so at a cost certainly no more than, and in many cases less than, authorized by a regular VHF booster service.

I state that in view of the prevailing political, technical, and legal considerations it is respectfully submitted that the solutions I have just discussed represent a reasonable method for handling the VHF booster problem. It is a method that will solve existing problems without creating many new ones.

I want to thank the committee for this opportunity of appearing here to discuss these matters.

The CHAIRMAN. Thank you, Mr. Shapp.

Mr. Younger?

Mr. YOUNGER. I would like to ask a number of questions about your community antenna system, but that is aside from the issue here. We will probably have that again if we return to this so I will wait on that subject.

It does seem to me that your testimony somewhat is governed by the interest you have in some 13 community antenna stations.

Mr. SHAPP. Sir, in regard to that——

Mr. YOUNGER. You do have interests, do you not, in that?

Mr. SHAPP. Our company owns 9 community antenna systems and I have an interest in 3 others, so you might say I have an interest in 12.

In this regard, I might state that about 4 or 5 years ago when the Senate and the FCC both considered the UHF translator situation, I appeared before both the FCC and the Senate and made written submissions to both.

Then we were 100 percent in favor of the approval of the UHF translator service even though that service also competes with our community antenna system. I did so for two reasons: first, community antenna systems, by their very nature ordinarily serve a congested area and there is a service necessary out into the outlying areas where the population is more scattered; therefore, if we were to have a truly national picture of service to fringe areas, it was necessary to have something to go along with community antenna systems even though UHF translators do compete with community antenna systems.

We felt that it was proper for us to support such a service.

The second reason is that UHF translators do not cause interference with any other service. Therefore, if you are to develop a service for the country that is truly national, it can be done by a combination of CATV, UHF translators, satellites, local broadcasters, and none of these services interfere with each other.

The moment you put in UHF boosters utilizing these 12 channels, you then create a situation of self-defeat. It is for this reason we have supported UHF but not supported, and in fact opposed, VHF booster expansion programs.

Mr. YOUNGER. That is all.

The CHAIRMAN. Mr. Avery?

Mr. AVERY. Is a UHF translator an apparatus whereby a VHF signal is transposed to the UHF frequency?

Mr. SHAPP. Generally speaking, that is correct. It can also pick up another UHF broadcast signal and transmit it to——

Mr. AVERY. A different channel?

Mr. SHAPP. UHF channel, sir. It is used both ways.

Mr. AVERY. That is all. Thank you very much.

The CHAIRMAN. Mr. Shapp, you have referred to boosters and that is the problem we are trying to deal with. Some witnesses have talked about repeaters.

Is it your understanding that that is the same thing referred to as a booster?

Mr. SHAPP. Yes. I would say that the words "booster," "repeater," and "reflector" as used today are synonomous.

The CHAIRMAN. They are synonymous and use the same apparatus?

Mr. SHAPP. Yes.

Mr. AVERY. Are they identical?

Mr. SHAPP. Yes. In the VHF band they would be identical.

The CHAIRMAN. Then you have the translators. That takes a signal from the receiving station and translates it into some other channel, so to speak?

Mr. SHAPP. Yes.

The CHAIRMAN. Or some other area of the spectrum and passes it along to the final receiving sets in the houses?

Mr. SHAPP. That is correct. The translator would be either in another VHF frequency or in the UHF band.

The CHAIRMAN. Then you have the CATV type of operation and the satellite?

Mr. SHAPP. That is correct.

The CHAIRMAN. Are there any other kinds of operations referred to in this business we need to know about in considering this matter?

Mr. SHAPP. Yes. I can confuse the issue some more and give you some other ones.

The CHAIRMAN. All right.

Mr. SHAPP. In this connection, you should take up individual antenna because there are people who put up their own towers in fringe areas to get their own signals and then you have what are known as neighborhood systems.

The CHAIRMAN. That is CATV, is it not?

Mr. SHAPP. It is and it is not. Ordinarily, CATV you think of wiring a whole community. This is sometimes called a blockbuster or neighborhood system where a group of 8 or 10 people put up their own antenna and wire the block in which they are living.

The CHAIRMAN. This is sort of like putting up one antenna in an apartment building and then everybody tags onto it?

Mr. SHAPP. That is correct. It is a multiple antenna system.

The CHAIRMAN. Is there anything else that can confuse us?

Mr. SHAPP. No; I shan't even try.

The CHAIRMAN. That is six of them we have to keep in mind, or seven.

Mr. AVERY. Mr. Chairman?

The CHAIRMAN. Mr. Avery.

Mr. AVERY. Did he define a satellite earlier in his statement?

The CHAIRMAN. He defined it and gave an example of it.

Mr. AVERY. Then there is no need to question him on that. That is good enough for me.

The CHAIRMAN. Do I understand that to receive, to intersect, or take a signal from a television station for the purpose of transmitting it on to the users, that the same kind of apparatus is used for boosters, CATV, repeaters, and reflectors?

Mr. SHAPP. The same type of receiving antenna at the receiving site is used; yes, sir.

The CHAIRMAN. Then if it is to be translated and to be sent on through or sent out to some other place, you have to have another apparatus in connection with the one that receives the signals?

Mr. SHAPP. That is correct.

The CHAIRMAN. That translator is built in with it?

Mr. SHAPP. It could be another rack or piece of equipment but located usually at the same location.

The CHAIRMAN. In other words, take it here by this one and immediately transferred over to the translator thing and sent on out; is that the way it goes?

Mr. SHAPP. That is one way it is done, and it is the most common way. There are some installations, Mr. Harris, where you will pick up a signal from the broadcast station down one side of the mountain and then run a cable just over the mountain to the other side and spray down this way in order to avoid some interference problems, but they will be within 100 or 200 feet of each other. It is the same thing as being together but to get away from the interference problem.

The CHAIRMAN. Thank you very much. We appreciate your appearance and testimony here, but our time is up.

This will conclude the hearings on this proposal, and I would ask that the room be cleared immediately.

(The following letter was later received for the record:)

NATIONAL COMMUNITY TELEVISION ASSOCIATION, INC.,
Washington, D.C., June 6, 1960.

Hon. OREN HARRIS,
Chairman, Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D.C.

DEAR MR. HARRIS: This statement and the attached material are submitted on behalf of the National Community Television Association, Inc. (NCTA) for the use of the subcommittee and the full committee in connection with their consideration of S. 1886 relating to television "booster" stations. The attached material consists of the comments of National Community Television Association, Inc., in Federal Communications Commission Docket No. 12116, in the matter of amendment of part 4 of the Commission's rules and regulations to permit the operation of low power television broadcast repeater stations. Appended to the comments is an engineering report prepared by the Television Repeater Study Committee, an industry committee under the technical direction of A. Earl Cullum, Jr., consulting radio engineer, Dallas, Tex.; Archer S. Taylor, consulting radio engineer, Missoula, Mont.; George M. Frese, consulting radio engineer, Wenatchee, Wash.; Charles H. Merritt, professor of engineering, Arizona State University; and T. G. Morrissey, consulting radio engineer, Denver, Colo. Messrs. Cullum, Taylor, Frese, and Morrissey's qualifications as experts in the field of radio and television engineering are a matter of record at the Federal Communications Commission.

Following extensive and detailed studies and investigation, the committee arrived at the following conclusions with respect to the need and desirability of a VHF repeater television service:

1. A low power, low cost television rebroadcasting service is a useful adjunct to the U.S. television broadcasting service, to provide a service or choice of service to areas where service is not otherwise available because of terrain, or economic limitations, if the service can be established with due regard for the public interest in other television and radio communication services.

2. There is abundant evidence that the UHF translator service authorized by FCC is capable of providing this service.

3. When all factors are considered on a comparable basis, only minor cost differences are found between UHF and VHF repeater services.

4. Because of the greater danger of interference on VHF channels than on UHF channels, it is imperative that engineering standards for a VHF service be at least as protective as for a UHF service. A VHF repeater service, however, appears to be technically possible under proper conditions.

5. It is respectfully submitted by this committee that for the protection of the public, all superior off-the-air receiving systems, whether for broadcast relay, UHF translators, VHF repeaters, or CATV systems, be assured against destruction by reason of interference from VHF repeaters. This could be accomplished either by prohibition of VHF repeaters, or by the adoption of rules and standards adequate to provide such assurance.

6. Furthermore, because of the intermingling of vital communications services in the VHF television bands, any rules adopted for a VHF repeater service must provide protection against interference to these non-broadcast services.

The basis for these conclusions is set forth in detail in the engineering appendix. No party to FCC docket No. 12116 undertook to attack the validity of these conclusions. Based upon the engineering report, NCTA filed the attached comments with the Commission in docket No. 12116 outlining a program which called for the granting of special temporary authority or operating certificates to VHF repeater stations in operation as of the date of the final report and order of the Commission in docket No. 12116 and the eventual conversion of the VHF boosters to UHF operation. NCTA recommended a 6-point program as follows:

1. That upon passage by Congress of the necessary legislation, the Commission accept applications under oath for licenses from all operators of VHF repeater stations in operation as of the date of adoption of a final report and order in docket No. 12116, such licenses to identify, in addition to the operator, the location of the repeater, the area and number of families served, and such other data as the Commission may deem proper.

2. That the Commission grant all applications received within a specified time following public notice of the final report and order (60 days is suggested as reasonable) and issue licenses for a period of up to 5 years subject to the following conditions, among others, as the Commission may deem desirable:

(*a*) That no repeater so licensed shall operate at a transmitter output power in excess of 1 watt.

(*b*) That no electrical interference exists to television broadcast reception whether by means of CATV systems or standard receiving antennas, or to reception and rebroadcasting by translator or satellite television broadcast stations; that no interference exists to nonbroadcast communications services, and subject to the further condition that any subsequent interference shall be eliminated immediately or the repeater shut off.

(*c*) The applicant agrees as a condition precedent to obtaining license that it will convert within the 5-year license period to the approved service provided for in the Commission's rules and regulations.

3. No VHF repeater system not licensed within the time period to be fixed under paragraph 2 will be permitted to operate under any circumstances whatsoever.

4. Violation of any of the conditions of the license will result in automatic revocation thereof and it shall not be subject to reinstatement.

5. The FCC will vigorously prosecute the operator of any VHF repeater, construction of which was commenced after issuance of public notice of the final report and order until such operation has been discontinued voluntarily or as a result of appropriate legal process.

6. FCC will take steps to enforce strictly the 1-watt power and noninterference requirements.

NCTA believes the VHF booster service is technically unable to meet the ultimate requirements of the fringe-receiving-area public for television reception service, that it is inherently dangerous to other communications services, and constitutes a major step in the direction of a breakdown of the television allocation plan, but, nevertheless, due to the failure of the Commission to enforce the Communications Act when the boosters first came into being and because of the continued widespread operation of such systems, a situation exists such that wholesale immediate cessation of the operation of existing stations is impractical and unrealistic.

Accordingly, the only reasonable alternative would appear to be to permit existing systems which can demonstrate that they create no electrical interference to any other television receiving service or other communication device devoted to the safety of life and property to continue in operation for a reasonable

period of time subject to their eventual replacement by UHF translator systems. However, the construction and operation of new VHF booster devices should be prohibited.

In view of the foregoing, it will be seen that while NCTA cannot conclude that the establishment of a VHF repeater service would be in the public interest, it does not at this time register opposition to S. 1886. It is strongly believed, however, that the committee should make clear to the Commission, in its report, that the Commission is not relieved of a duty to protect all other communication systems including television receiving systems from electrical interference from VHF boosters, and that all decisions made with respect to such a service must be made in the light of the overall public interest in an adequate nationwide television service.

Very truly yours,

A. J. MALIN, *President.*

(Thereupon, the hearing was adjourned at 11 a.m.)

×